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ABSTRACT

This book opens with an exploration of the fundamental trilogy of economics - scarcity, choice, and cost. Students then examine the broad social goals of an economy in preparation for lessons treating many topics new to the precollege level such as the stock market, public choice, and aggregate supply and demand. The set of 20 lessons include: (1) "Scarcity, Choice, and Decisions"; (2) "Broad Social Goals of an Economy"; (3) "A Market in Wheat"; (4) "The Market Never Stands Still"; (5) "Markets Interact"; (6) "Price Controls: Too Low or Too High"; (7) "Price Changes Matter"; (8) "The Stock Market: Risks and Rewards"; (9) "Getting More or Using Less"; (10) "Learn More, Earn More"; (11) "Rich Man, Poor Man"; (12) "Public Goods and Services"; (13) "Third-Party Costs and Benefits"; (14) "Public Choice: Economics Goes to Washington and into the Voting Booth"; (15) "When There Isn't Pure Competition"; (16) "Until the Last Unit Equals"; (17) "The Circular Flow of Economic Activity"; (18) "Economic Ups and Downs"; (19) "Aggregate Supply and Demand: The Sum of Their Parts, and More"; and (20) "Money, Interest, and Monetary Policy." Each lesson includes core concepts, objectives, materials needed, a lesson description, procedures, and suggested evaluation. (EH)

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FOCUS
High School Economics

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FOCUS
High School Economics

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National Council on Economic Education

A partnership of education, business, and labor

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The authors of the *Master Curriculum Guide: High School Economics Courses*, on which this publication is based, were John S. Morton, (Chair), Stephen G. Buckles, Steven L. Miller, David M. Nelson, and Edward C. Phren.

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FOREWORD

Focus: High School Economics, a core volume in a new generation of National Council publications, is dedicated to increasing the economic literacy of all students. The *Focus* publications, the new centerpiece of **Economics**America, build on almost five decades of success in delivering economic education to America's students.

The *Focus* series is both new and innovative, using economics primarily to enhance learning in such classes as history, geography, civics, and personal finance, as well as in economics classes. Activities are interactive, reflecting the belief that students learn best through active, highly personalized experiences with economics. Applications of economic understanding to real world situations and contexts dominate the lessons. In addition, the lessons explicitly teach the voluntary national standards in economics, outlined in the National Council's *A Framework for Teaching the Basic Economic Concepts*.

Focus: High School Economics opens with an exploration of the fundamental trilogy of economics—scarcity, choice, and cost. Students then examine the broad social goals of an economy in preparation for lessons treating many topics new to the precollege level such as the stock market, public choice, and aggregate supply and demand.

The National Council thanks the chief author, Michael Watts, Professor of Economics and Director, Center for Economic Education, Purdue University; and Sarapage McCorkle, Associate Dean, Arts and Sciences–Continuing Education, and Director, Center for Entrepreneurship and Economic Education, University of Missouri, St. Louis; Bonnie Meszaros, Associate Director, Center for Economic Education, University of Delaware; Robert F. Smith, Executive Director, Texas Council on Economic Education; and Robert J. Highsmith, Vice President, Program and Research, National Council on Economic Education.We also thank Joan Sullivan Baranski, publisher, for her creativity in producing the program. We recognize, as well, the financial support of the National Science Foundation.

Robert J. Highsmith
Vice President, Program and Research

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John S. Morton, *Chair*
Stephen G. Buckles
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David M. Nelson
Edward C. Prehn

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Finally, we gratefully acknowledge the financial support provided by the National Science Foundation's Teacher Enhancement Program. We wish there had been even more financial support for us to acknowledge, but of course that is the eternal lament of economists and educators.

INTRODUCTION

What's New in This Edition?

The first edition of what became widely and affectionately known as the "Silver Bullet"—officially the *Master Curriculum Guide for High School Economics Courses*—was a pathbreaking document in many ways. It soon became extremely popular with high school economics teachers and teacher trainers. In fact, it proved to be so popular that most of its lessons were "recycled" in later documents published by the National Council on Economic Education (NCEE), especially in its *International Trade* Master Curriculum Guide (MCG) volume, the *Advanced Placement Instruction Package* (APIP), and the *Capstone* volume of student materials for high school economics courses.

As the writing team for this publication began its work, the availability of those "old" lessons in other publications made it possible to drop some of them in order to cover topics that have become a more important part of introductory economics courses since the *Master Curriculum Guide* was published. Specifically, entirely new lessons were written to cover the stock market, profits, and risk (Lesson 8), human capital investments in education (Lesson 10), income distribution (Lesson 11), public goods (Lesson 12), public choice economics (Lesson 14), and aggregate supply and aggregate demand (Lesson 19). Admittedly, in some cases the material we dropped has at least as much claim to scarce page space as these new lessons—a good case in point is the material we dropped on international trade, which has become increasingly important over the past several decades. But remember, those lessons are still available in the other publications.

Virtually all of the other lessons in this volume that appeared in the *Master Curriculum Guide* have been updated and extensively rewritten (sometimes as two lessons now combined into one) to incorporate active-learning, small-group, or full class activities. We also added information and activities built around real world economic data that we provide or that students (and, in one case, teachers) can easily collect in 12 of the lessons. We generally eliminated or at least de-emphasized the use of student worksheets, which again are featured prominently in the APIP and Capstone volumes and are still available to interested users. Finally, we added a concluding assessment activity in all but one lesson.

We judged these pedagogical revisions to be desirable for several reasons: 1) the more active, group-oriented, hands-on (and frequently feet-moving) activities are usually more effective both in motivating students and in providing a reference point for teachers to have students recall, think about, discuss, and build on in later classes dealing with the same concepts; 2) these kinds of activities are often harder and riskier for individual classroom teachers to develop themselves than other kinds of classroom assignments and materials; 3) the real-world data are difficult for many high school teachers to come by, and meet another standard of "relevance" and "application" in the lesson; 4) the extended assessment activities are useful both as a way of synthesizing the content of a lesson and in meeting the current educational fashion of providing an alternative to traditional (i.e., objective) testing procedures; and 5) the pedagogical specialization across the different NCEE publications makes this volume more useful both as a stand-alone manual, and as a complementary product to be used with other NCEE materials.

Using These Lessons in the High School Economics Course

There are more important things to teach in a high school economics course than there is time to teach them, which of course is just one more example of the fundamental economic problem of scarcity—this time in allocating the resources of limited classroom time and teacher and student effort. There are also many different ways to teach a good economics course, many different teacher methods and strategies that might be used, and literally thousands upon thousands of real-world examples and policy issues to highlight. The one best way for everyone to teach the high school economics course probably doesn't exist; but

there may well be *one* best way for *you* to teach economics to *your* students, given your particular background, interests, and skills, and those of your students.

We recommend that you start planning the course by thinking about yourself and your students, and making a list of the topics you want to be sure to cover as the course unfolds. For example, your list might include such things as career choices and the decision about whether or not to go on for a college degree, or the public policy debates over health care reform and free trade agreements, or price supports for agricultural products and price ceilings on credit card interest rates and rents on apartments in large cities, or unemployment rates for skilled and unskilled workers, or inflation rates in the Unites States and other countries in different decades of this century.

Once you have chosen the mix of examples and issues you believe to be most important and interesting for you and your students, look at any curriculum guidelines your state or district has set for your course, and at the National Council's *Framework for Teaching Basic Economic Concepts with Scope and Sequence Guidelines*, and perhaps last of all at the basic textbook you will be using. Decide when and how you will feature the examples and issues you have chosen to teach the core economic concepts identified in those publications. (For quick reference and convenience, the list of basic concepts from the NCEE's *Framework* is shown in Table 1.)

Finally, look for the specific activities that help you teach these concepts and introduce the issues and examples you have chosen to cover, such as (but certainly not limited to) the lessons in this publication. Using the basic economic concepts, and helping your students understand them with the activities included in this volume and others, will lead your classes to *analyze* the examples and issues you have chosen to study, not just talk and argue about them with little hope of reaching any conclusion or of learning anything from the discussion. Keep in mind that it is these pervasive, versatile, and enduring concepts—not the sometimes transitory issues and problems to which they are applied—that distinguish economic analysis from history, sociology, mathematics, and

Table 1
Basic Concepts of the High School Economics Course

Fundamental Economic Concepts
1. Scarcity and Choice
2. Opportunity Cost and Trade-offs
3. Productivity
4. Economic Systems
5. Economic Institutions and Incentives
6. Exchange, Money, and Interdependence

Microeconomic Concepts
7. Markets and Prices
8. Supply and Demand
9. Competition and Market Structure
10. Income Distribution
11. Market Failures
12. The Role of Government

Macroeconomic Concepts
13. Gross Domestic Product
14. Aggregate Supply and Aggregate Demand
15. Unemployment
16. Inflation and Deflation
17. Monetary Policy
18. Fiscal Policy

International Economic Concepts
19. Absolute and Comparative Advantage and Barriers to Trade
20. Exchange Rates and the Balance of Payments
21. International Aspects of Growth and Stability

Measurement Concepts
- Tables
- Charts and Graphs
- Ratios and Percentages
- Percentage Changes
- Index Numbers
- Real vs. Nominal Values
- Averages and Distributions Around the Average

Broad Social Goals
- Economic Freedom
- Economic Efficiency
- Economic Equity
- Economic Security
- Full Employment
- Price Stability
- Economic Growth
- Other Goals

other social, natural, and physical sciences. Put differently, taken together and used effectively, these concepts represent what John Maynard Keynes called "the economic way to thinking." But beware the trap of teaching the concepts as dry, sterile theory, at least to any but the most capable and theoretically oriented students. The excitement of economics for most people comes in applications—either to very familiar daily events involved in personal and family "making, getting, and spending," or to sweeping social issues at the local, state, or international levels.

In preparing this volume of lessons and activities, that is the approach we have also tried to follow, at least as a general rule. That is not meant to suggest there will never be days when, even in very applied courses, it is essential to deliver a good, solid lecture on a key economic theory or model that students aren't likely to understand without that kind of instruction, or to use drill-and-practice worksheets and other, more regimented ways of learning to drive those conceptual understandings home. Indeed, some activities here are designed to help with those kinds of lectures, or assume that such a lecture is presented before an activity is conducted. But we have intentionally tried to make that approach the exception, not the rule. Accordingly, most of the lessons in this volume include direct applications to things or events students have already experienced themselves first hand, or at least read about in the popular press, or heard about on radio or television news programs.

Of course, no single manual can provide all of the activities, examples, and facts and figures you will want to use in a semester-long course. The annotated list of additional sources provided here offers some good starting places to remedy that problem, and as a group these references provide more than enough material to fill out several years worth of good economics courses. Even so, the list of additional resource materials itself cannot be comprehensive, and undoubtedly omits some of the favorite sources of many good economics teachers. That is one important reason to talk with your colleagues about the topics, activities, and tricks of the trade that they find most effective and innovative, and to share your own good ideas with them. Once you stop looking for new ideas and new materials, and talking with other teachers about what works and what doesn't, your effectiveness will begin to diminish.

Supplementary Teaching Materials for the High School Economics Course

I. Additional Volumes from the National Council's *Focus Series:*

1) *A Framework for Teaching Basic Economic Concepts with Scope and Sequence Guidelines, K-12*, Phillip Saunders and June Gilliard, eds., 1995. A short overview of basic economic concepts to be covered in precollege economic education programs and the high school economics course, together with more specific content statements to be introduced at particular grade levels, and listings of available instructional materials published by the NCEE that cover the concepts at different grade levels and in different subject areas.
2) *World History*, by Jean Caldwell, James Clark, and Walter Hersher, 1996.
3) *Geography*, by George G. Watson, Jr., Carlyjane D. Watson, Margaret Landman, and Vernon A. Domingo, 1996.
4) *U.S. History*, by Donald R. Wentworth, Mark Schug, and Beth Kraig, 1996.
5) *Personal Economics*, by Don R. Leet, R.J. Charkins, Nancy Lang, Jane Lopus, and Gail Tamarabuchi, 1996.
6) *Civics/Government*, by James Dick, Peter Moore, and Jeffrey Blais, 1996.
7) *Middle School*, by Mary Suiter, Joanne Dempsey, Mary Lynn Reiser, and Mary Ann Pettit, 1996. Some of these lessons and activities could be used to introduce concepts in high school economics or social studies classes.

II. Other NCEE Publications

1) *International Trade*, by Donald R. Wentworth and Kenneth E. Leonard, 1988. Secondary-level teaching strategies and activities, organized in 23 different lessons.
2) *Capstone: The Nation's High School Economics Course*, by Robert W. Reinke, Mark Schug, and Donald R. Wentworth, 1989, 58 lessons and seven tests.
3) *Advanced Placement Instructional Package*,

John S. Morton, chief writer. 1996. Separate volumes of exercises in microeconomics and macroeconomics keyed to a group of best-selling college-level principles of economics textbooks, and designed for students preparing to take the College Board/ETS Advanced Placement exams in economics.

4) *The Senior Economist.* A periodical issued four times a year, with each issue focusing on a current economic issue or theme, introduced by a prominent economist, and supported by instructional activities designed to be used in high school economics courses.
5) *The Test of Economic Literacy (TEL)*, 2nd ed. A nationally normed test for secondary economics and social studies classes, published in two forms, each with 46 multiple-choice questions. The *Examiner's Manual* by John C. Soper and William B. Walstad was published in 1987.

III. Videos and Films

Give and Take: a series of 15-minute films/videos on personal economics, designed for secondary school students and produced by the Agency for Instructional Technology and the NCEE.

Return to Mocha: a half-hour animated film for secondary school students, covering international trade and comparative economic systems. Produced by the Amoco Foundation, Inc.

Economics USA: a series of films covering basic microeconomics and macroeconomics, designed for use with college, adult, or more advanced high school students. Available from the Annenberg/Corporation for Public Broadcasting Collection.

Understanding Taxes: a multimedia package including videos on the microeconomic effects of taxes, the history of taxes, and completing tax forms. Published by the U.S. Internal Revenue Service.

IV. Statistical Data Sources on the U.S. Economy

Economic Report of the President: published each February by the President's Council of Economic Advisors, featuring articles on current economic issues and a long statistical appendix with data on the U.S. economy and most key sectors of the economy. Contact the U.S. Government Printing Office.

Economic Indicators: a monthly publication of the Joint Economic Committee of the U.S. Congress, with the most recent statistics on the key macroeconomic data series that are collected and published by federal agencies. Contact the U.S. Government Printing Office.

Federal Reserve System: publishes the *Federal Reserve Bulletin* with key data on money, banking, and credit in the U.S. economy. Many of the 12 regional Federal Reserve banks publish a wide range of economic education print and video materials for use in pre-college classes, and some have regular newsletters or electronic networks for teachers.

Ability Guidelines and Flexibility of Text

The teaching procedures and activities in this publication are designed to provide a great deal of flexibility in use with students of different ability levels. In general, the lessons are appropriate for all students. A few of the extended activities are much easier to use with stronger students in classes with a more analytical focus. To identify those activities, the following coding system appears in the materials section at the start of each lesson:

★ all students–basic course material
■ average and above average students

LESSON ONE
SCARCITY, CHOICE, AND DECISIONS

INTRODUCTION

Scarcity, choice, and cost are sometimes referred to as the fundamental trilogy of economics because of the strong interrelationships between these key concepts. Since resources are limited, compared to wants, individuals and families face the problem of scarcity in deciding how to allocate their incomes and their time. Each society must also make choices about how to use its scarce resources. And every choice involves an opportunity cost—the forgone opportunity to make a different choice and use resources in a different way.

CONCEPTS

Scarcity
Opportunity costs and trade-offs

CONTENT STANDARDS

Scarcity results from the imbalance between relatively unlimited wants and limited resources.

Scarcity requires people to make choices about using resources to satisfy wants.

Scarcity of resources necessitates choice at both the individual and the public policy levels.

Opportunity cost is the highest valued alternative that must be forgone because another option is chosen.

All economic decisions involve opportunity costs; weighing the costs and benefits associated with alternative choices constitutes effective economic decision making.

OBJECTIVES

◆ Define the opportunity cost of a decision as the most valuable forgone alternative.

◆ Analyze trade-offs involved in making spending decisions.

LESSON DESCRIPTION

This lesson provides examples of individual and group decision making with specific situations involving opportunity costs. Activity 1 is a group activity. Activity 2 can be done individually or in groups.

TIME REQUIRED

Two class periods. Day one—procedures 1 and 2. Day two—procedure 3 and Assessment.

MATERIALS

★ One copy of Activity 1 for each student
★ One copy of Activity 2 for each student

PROCEDURE

1. Tell the students to assume that for some reason they have one hour of free time this evening that they did not expect to have. For example, say a team practice or meeting was canceled. Discuss what the students would like to do with this "free" time. List ideas on the chalkboard or overhead. (Expect some rather standard suggestions such as watch TV, read, sleep, talk on the telephone, etc., and some not so standard ones, such as studying economics or various activities relating to fertility rites.) After a sizable list is developed, ask each student to write down the four or five activities he or she would most like to do. Then ask students to select the one thing to do with this hour of time by placing stars next to their first choices and circles around their second choices. Draw two columns on the chalkboard and label one column *choice* and the other *cost*. Ask three or four students for their first choices. Write each under the choice column. Place their second choices under the heading labeled cost. Ask students: "Why did I place your second choice under the column labeled cost?" (The discussion should stress the ideas that there is a *real* or *opportunity cost* in making this decision, even though money is not involved, and that the cost of the alternative selected was the *one* most valuable alternative that was not selected. Note that different people have different opportunity costs and make different choices.)

2. Distribute a copy of Activity 1 to each student. Divide the class into groups of four or five students each. Ask each group to reach a decision

★ all students–basic course material
● average and above average students

about how the funds should be used, and to prepare an answer for the question on the activity sheet. Then lead a class discussion, focusing on the trade-offs that had to be made, and how differing preferences resulted in different choices and trade-offs.

(Frequently, students choose to hire an expensive band and cut corners elsewhere. Their problem can be complicated by defining the senior class project in a way that will make the decision more difficult. For example, if the class project is defined as raising money to buy a motorized wheel chair for a disabled classmate, the project is likely to generate more support.

The problem is similar to family decisions in that difficult choices *must* be made, and compromise is necessary because of varying opinions of family members. But this problem is *unlike* family decision making in some critical ways. This is one of the few decisions students will make together, as a group. A family has to make continuous spending decisions concerning food, shelter, clothing, and transportation, as well as entertainment. Also, many family decisions must be considered with respect to their long-run effects as well as immediate impacts.)

3. Distribute one copy of Activity 2 to each student. Instruct students to review Corny's budgetary situation and then to construct their own budget. (Students' budgets and responses to the questions asked will, of course, vary greatly.)

ASSESSMENT

A discussion of some students' hypothetical budgets can be used to assess understanding of the concepts of scarcity and opportunity costs and show that different people make very different evaluations of their opportunity costs.

ACTIVITY 1
PLANNING THE PROM

Name _____

Your class has been engaged in various fund-raising projects during the past several years, and you now have a total of $9,635 to spend on a big bash—your last school dance. You may not spend more than this amount on the dance, but you do not have to spend all of it on the dance. Any money "left over" can be used for a class project, designed to help your school or community.

You have decided that there are three categories of expenditures for the dance: 1) hiring a band, 2) renting a place to hold the dance, and 3) providing refreshments and decorations. A committee has provided the following information:

Bands Available for Dance

Cost	
$1,000	Tangerine Flakes—plain, loud, and cheap
2,500	The Jubilation T. Cornpones—good progressive country
4,000	Granite—good hard rock
5,000	The National Debt—"getting bigger every day"—a popular new group featuring mellow rock and R & B tunes
6,500	Philadelphia Transit Authority (the PTA)—nationally known, 2 gold albums, rap music
8,000	The Bounding Rocks—well-known touring group from England—wide range of classic rock and roll

Places Available for Dance

Cost	
$ 200	School Gym
600	American Legion Hall
1,500	Holiday Inn
2,000	The Hilton Hotel
3,000	The Knob Hill Country Club

Refreshments and Decorations for Dance

Cost	
$ 500	Home Economics classes fix sandwiches and decorations
1,000	Catered—simple snacks and decorations
3,000	Catered—good stuff—fancy snacks and neat decorations
5,000	Package deal—fairly good snacks and decorations at dance, and an after-dance meal at a restaurant

Your task now is to decide, with the other members of your class, which band to hire, where to hold the dance, and what type of refreshments and decorations to provide. Your class must select one item from each expenditure category.

DISCUSSION QUESTION:

In what ways is this problem similar to the "economizing problem" faced by your family, and in what ways is it different?

ACTIVITY 2
SCARCITY, CHOICE, AND DECISIONS

Name _____

Last year Jim Cornelius (Corny to his friends) graduated from a two-year technical training school and got a job as a lathe operator at a nearby manufacturing plant. His salary is now $1,700 per month. He expects to get very small wage increases during the next year or two, but hopes to be promoted to line inspector in about three years, which will result in a $200 a month raise.

Corny is sharing an apartment with a high school friend who also works at the plant. They are each spending $365 every month for a two-bedroom apartment and utilities, including local telephone service and cable TV. Corny would like to live alone in a one bedroom apartment, but he figures that would cost about $560 a month (including utilities).

Corny has a two-year-old compact car on which he owes about $3,000. His monthly car payment is $190. He wants to buy a new car as soon as the one he has now is paid for, and he expects his car payments to be quite a bit higher then.

Corny loves to listen to music, and his stereo system is a few years old. He wants to buy a new one. He has saved $300 over the past three months, but he figures that the system he wants will cost at least $1,000. He has good credit, and his credit card has a zero balance. He could charge up to $1,500, but hates to obligate himself to more monthly payments.

Look at Corny's monthly budget in the table below. What changes do you think he should make in his monthly spending? If you were earning Corny's salary of $1,700 per month, how would you divide it up among these categories, or for other things you want?

CORNY'S MONTHLY BUDGET

Budget Category	Corny	You
Social Security Tax	$130	$130
Income Taxes	200	200
Housing (includes utilities, cable TV, local phone)	365	
Food—groceries	220	
Food—eating out	75	
Clothing	75	
Car payment	190	
Car—operation (gas, oil)	45	
Car—insurance	35	
Car—repairs	30	
Medical Insurance (deductibles and co-payments)	25	
Entertainment—movies, hanging out, snacks, beverages, etc.	75	
Health Club	15	
Bowling	25	
CDs	30	
Newspapers, books, magazines	15	
Gifts (birthdays, Mother's Day, etc.)	20	
Savings (for stereo)	100	
Miscellaneous (haircuts, toiletries, laundry, etc.)	30	
TOTAL	$1,700	$1,700

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LESSON TWO
BROAD SOCIAL GOALS OF AN ECONOMY

INTRODUCTION

Several recent events have focused attention on the broad social goals of economic systems, including the breakup of the former Soviet Union, the aging of the U.S. population, remarkable advances in technology, and public policy discussions relating to health care, retirement, job training, and international trade. These are just some of the events that have forced people to seriously examine the questions:

1) *what* do we want our economic system to do; and

2) *how effectively* is our economic system doing those things?

A widely accepted list of broad social goals for an economic system, along with brief explanations of these goals, is shown in Activity 1. A careful, explicit discussion of these goals helps lay a foundation for later lessons and examples that deal with public policy issues.

The overall task of American voters and policy makers today is to decide how best to achieve these goals within the framework of a market economy. That's not always easy to do. In some cases, the goals complement each other—i.e., efforts to achieve one goal facilitate the achievement of another. But in other cases, there are serious trade-offs to be faced, and actions designed to achieve one goal interfere with achieving another goal. Resolving these conflicts when people have different opinions about the relative importance of each of these goals, and different interpretations of what the goals mean, is a perennial challenge in every country, and in every economic system.

CONCEPTS

Economic goals
Trade-offs

CONTENT STANDARD

Economic systems can be evaluated by their ability to achieve broad social goals such as freedom, efficiency, equity, security, and growth.

OBJECTIVES

◆ Identify five broad goals of an economic system.

◆ Discuss and evaluate the relative importance of the five broad goals.

◆ Evaluate various public policy actions with respect to their impact on the American economy and the achievement of these five goals.

LESSON DESCRIPTION

This lesson uses a lively (sometimes loud) activity to demonstrate to students why public policy actions are usually controversial. Students will be introduced to statements reflecting a wide range of viewpoints and dealing with various kinds of public policy actions that they will have to evaluate in terms of their own views and preferences. Discussions of these statements with other students representing other viewpoints are then used to develop new statements, which are designed to be acceptable to a broader range of people with different goals.

TIME REQUIRED

Three class periods. Day one—procedures 1 and 2. Day two—procedures 3-6. Day three—Assessment.

MATERIALS

★One copy of Activity 1 for each student.
★One copy of each of the statements listed in Activity 2. Putting each statement on 3" x 5" index cards is helpful, but not required.
★One copy of Activity 3 for each student.

PROCEDURE

1. Distribute Activity 1—The Broad Social Goals of An Economic System. After allowing time for the students to read it, explain that individuals have different opinions concerning the relative importance of these goals and how well the American economy is achieving them.
This activity asks students to rate the importance of each of the five goals in accordance with what-

★ all students–basic course material
■ average and above average students

ever criteria the students think appropriate, and to assign a grade for each goal. This could be done by individual students or in small groups. Discussion of this part of the lesson might include listing on an overhead or chalkboard the number of "votes" each goal received (cast as numbers 1-5) and the letter grades assigned for each goal. Or, to save time, you may want to record only the number of votes each goal receives as the most and the least important.

2. Discuss with the students several examples of how the market system and/or specific government policies help to achieve one or more of these goals. Stress that policies designed to achieve one goal may interfere with the achievement of another. The following examples could be used:

A. Market competition encourages producers of tennis shoes, jeans, and other products to offer consumers a wide variety of styles in different price ranges. Consumers are free to choose from many competing goods and services.

B. Requiring motorcycle riders to wear helmets reduces their freedom, but may help to achieve the goal of economic efficiency (by reducing medical costs) and economic equity (taxpayers and consumers with auto and health insurance don't have to pay so much to support uninsured motorcycle riders who suffer serious injuries).

C. Taxes tend to restrict the economic freedom of taxpayers, but tax revenues may be used to support activities that promote the achievement of many goals. For example, some people argue that by requiring and providing a minimum level of education for all citizens, government expenditures and taxes help to achieve all five goals.

D. Students are likely to have varying opinions on the importance of the following government programs: national defense, public assistance (welfare), parks and other recreation areas, automobile inspection laws, and restrictions on the purchase of alcoholic beverages.

3. Cut up the Activity 2 statement cards, which describe various points of view and different public policies, and distribute them randomly to students. The 34 cards are numbered with pairs of related statements, i.e., statements 1 and 2 deal with the same topic, as do 3 and 4, 5 and 6, etc. Therefore, starting with card #1, use only the exact number of cards required to give one card to each student. Some statements with an odd number reflect what are often referred to as "liberal" attitudes or policies; some even-numbered statements reflect what are generally referred to as "conservative" attitudes or policies. Some statements don't fall in either category—they are included simply to stimulate interest and discussion. Some statements are expressed in rather extreme terms.

4. After you distribute the cards, tell the students: "Read the statement you have been given and decide whether you agree or disagree with it. Ask other students whether they agree or disagree with their statements. Try to exchange your card in order to get one statement with which you agree very strongly. You will have 10 minutes to negotiate a trade or trades." Discussions during the exchange of statements is likely to be lively. Some students will have very strong opinions about some of these statements.

5. Following the exchange of the statement cards, ask the students holding each matched pair of statements (1 and 2, 3 and 4, etc.) to sit or stand together and compare their statements. Ask them to discuss whether they think the statements, as written, are too extreme. Ask each pair of students to try to agree on a new statement on the same topic that might represent an acceptable compromise between the extreme positions. In some cases, this may be possible by changing a word or two. In other cases, the students may not be able to agree.

6. Review with the students the process they have just completed. In cases where a new statement was created, it might be written on the overhead or chalkboard and compared with the original statements. The class discussion can be directed using these questions: Which broad social goals are involved in each pair of statements? In what ways did the statements reflect a

conflict among the goals? In what ways did the statements reflect complementarity among the goals? What trade-offs were made in writing the compromise statement?

Stress that the actual determination of public policy actions occurs in the political process, and is shaped partly by what beliefs people hold and partly by the expected costs and benefits of the policies.

ASSESSMENT

Use Activity 3 to assess students' understanding and their ability to apply the concepts presented in this lesson. This can be done through class discussion or as a written assignment. Student responses are likely to vary greatly. The following positions on the issue may be discussed:

1. The idea of a "free" college education may appeal to some students, but others may argue that college students themselves are the main beneficiaries of higher education and should bear the major part of the cost. External benefits (benefits that accrue to society as a whole) are likely to be much greater for pre-college education, in which students learn basic reading, writing, computational, and social skills, than for college education.

2. Even under the suggested plan, students will still bear a large part of the cost of higher education because of the implicit cost of forgone earnings (the opportunity cost of the time spent in school and studying).

3. It might be argued that the economic freedom of college students will be strengthened by this plan, but the adverse effects on the freedom of car and truck buyers are very large.

4. The effects of this plan on economic efficiency can be debated from several points of view. A large increase in the proportion of the population with a college education is clearly beneficial, but the costs of achieving this in the manner proposed may be greater than the benefits.

5. Most students are likely to argue that, overall, this plan is unfair. Some students may want to support the idea of making college education "free," but financed in some other way.

6. Higher levels of education will tend to strengthen economic security as a result of lower levels of unemployment and higher incomes.

7. This plan might lead to increased long-run economic growth because higher education levels tend to increase productivity.

ACTIVITY 1
THE BROAD SOCIAL GOALS OF AN ECONOMIC SYSTEM

Name _____

The five broad goals described below can be thought of as criteria for evaluating an economic system. Some of these goals are difficult to measure in objective terms while others can be easily stated as numerical targets. In political campaigns and public policy discussions, there is often considerable debate concerning differing interpretations of these goals, their relative importance in the American economic system, and how well the system is achieving these goals.

Your Ranking*		Your Grade+
	Economic Freedom refers to such things as the freedom for consumers to decide how to spend or save their incomes, the freedom for workers to change jobs and join unions, and the freedom of individuals to establish new businesses or close old ones.	
	Economic Efficiency refers to how well productive resources are allocated with respect to the costs and benefits of using those resources. One definition of an efficient allocation of resources is a situation in which all resources are employed and no person can be made better off by shifting resources from their current use without making someone else worse off. When government actions alter the results of a market economy, such actions can be evaluated in terms of economic efficiency by examining the additional costs and the additional benefits of the action. Economic efficiency is improved only if the additional benefits exceed the additional costs.	
	Economic Equity. Equity, in this sense, simply means what is "fair". Economic actions and policies have to be evaluated in terms of what people think is right and wrong. Equity issues often arise in questions dealing with the distribution of income and wealth. For example, some people might think that a particular tax is fair while others consider it unfair.	
	Economic Security refers to protection against economic risks such as work injuries, unemployment, inflation, business failures, and poverty. Individuals often pursue the goal of economic security through savings and insurance. Many government programs are also directed toward the goal of economic security, including unemployment insurance, social security, and workers' compensation.	
	Economic Growth refers to increasing the production of goods and services over time. The rate of economic growth is measured by changes in the level of real gross domestic product, and a target of 3 to 4% growth per year is generally considered to be a reasonable goal. Economic growth complements some other broad social goals. For example, a growing economy can help achieve the goal of economic security by making it easier for people to spend more on private and social insurance programs.	

* In this column, use a 1-5 scale to show your own evaluation of the relative importance of each goal with 1 = low, and 5 = high. Put a * next to the goal you believe is *most* important, and an X next to the goal you consider *least* important.

+ In this column, assign a letter grade for each goal to indicate your evaluation of how well the American economic system achieves this goal today. A = Excellent; B = Good; C = Average; D = Fair; F = Failing.

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ACTIVITY 2

1	2	3
The main factor determining who is rich and who is poor in the United States is luck.	In the United States, anyone who is willing to learn and to work hard can get to the top, regardless of family background or income.	The driving force of American capitalism is competition, which forces people to be productive and efficient. Therefore, inherited wealth should be heavily taxed so that children of the wealthy have the same opportunities and face the same competitive pressures as everyone else.
4	5	6
Anyone who is successful enough to amass a family fortune should have the right to leave the fortune to his or her heirs without the estate being taxed, because taxes were paid when the person earned this income.	Free trade with other nations is essential to keep the American economy strong, rich, and competitive.	In order to protect American jobs and a high standard of living, the government should enact high tariffs and low quotas to keep cheap foreign goods out of the U.S.
7	8	9
All American citizens, regardless of income level, should be guaranteed an adequate level of health care.	Health care is just like any other good or service, and its price and quantity should be determined in private markets. If the federal government tries to provide health care, the price will go up and the quality will go down.	If reducing the nation's speed limit to 50 miles per hour would save even one life, it should be done.
10	11	12
The government should not dictate how fast people can drive on Interstate highways. If people want to risk their own lives driving fast that's their business, not the government's.	The government should enact and enforce strict laws to make sure that employers do not discriminate against workers on the basis of race, sex, or age.	An employer who can increase productivity by firing an older worker and hiring a younger one should be allowed to do so. The company will be more profitable, and the national economy will be more competitive.

ACTIVITY 2 (continued)

13	14	15
Drug abuse is a burden on our economy and on our health care system. Therefore, strong drug enforcement can reduce the demand for health care services and lower health care costs for all of us.	Tax dollars should not be wasted trying to enforce drug laws that are inevitably ineffective. Remember the U.S. experience with Prohibition in the 1920s.	Strong environmental protection laws should be enacted and enforced to make sure that our children and grandchildren have clean air, clean water, and a safe environment for people and wildlife.
16	17	18
Environmental protection programs are often misguided and lead to loss of jobs. They also increase prices of the things we buy.	A progressive income tax is the fairest possible tax. It raises revenue on the basis of people's ability to pay without creating undue hardships on anybody.	Progressive income taxes penalize those with higher incomes, which discourages their efforts to work, save, and invest, and thereby hurts society.
19	20	21
A sales tax isn't fair to people with low incomes because almost every dollar they spend is subject to the tax.	A sales tax is the fairest possible tax. Everybody pays the same percentage when they make a purchase.	The minimum wage should be increased because a person can't live on what the minimum wage is now even if he or she works 40 hours a week.
22	23	24
Minimum wage laws lead to unemployment because employers will only pay workers what they are worth, and some workers are not productive enough to earn the minimum wage.	The price of gasoline should be kept low by law so that people can afford to drive to work.	If the government keeps any price lower than the market price to try to help poor people, it will cause long lines, shortages, and black markets.

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ACTIVITY 2 (continued)

25	26	27
Anyone who watches television knows that a lot of valuable resources are wasted on commercials designed to trick people into buying things they really don't need. All advertising should be true and provable.	There are far too many frivolous government regulations that interfere with people's lives today. Government should worry about important things and not be concerned about what is shown on television commercials.	"Scalping" tickets for plays, concerts, and athletic events exploits consumers and should be illegal.

28	29	30
"Ticket scalping" for plays, concerts, and athletic events actually benefits both buyers and sellers.	It is ridiculous that some people are being paid several million dollars a year while other people can't afford food and a home. There should be a limit on the amount of money a person can earn.	In a market system, a person is entitled to earn as high an income as possible with no government restrictions.

31	32	33
The small family farm is the backbone of the American economic system and should be maintained even if prices for farm products have to be set higher than market-clearing prices.	We still have too many people living on small, inefficient farms. Farm subsidies should be eliminated to force these people to move into more productive work.	Large companies are so powerful today that they can charge any price they want. The automobile industry, the oil industry, and others, should be broken up into many small firms so that competition will keep prices low.

34
Large-scale production means more efficient production and lower prices for consumers. Large efficient firms should not be penalized for being successful.

ACTIVITY 3

Name _____

Assignment: Read this newspaper story and answer the discussion questions.

HIGHER EDUCATION PLAN PROPOSED

To be funded by new horsepower tax

The Board of Directors of the prestigious Economic Policy Institute Consortium (EPIC) issued a report yesterday calling for a startling new program to fund higher education in the United States. Members of EPIC include well-known business executives, labor leaders, and political figures. The consortium staff has just completed a two-year study of higher education.

Dr. Polly Fiscal, Executive Director of EPIC, explained the plan: "We are recommending that college educations be provided free to all students just as high school educations are. We believe that the case for providing a free college education is just as strong as the case for a free high school education. The impact of this new plan on the productivity of the American economy will be enormous. Using and adapting to today's technologies requires higher education. A college education in the 21st century will be as important as a high school education was in the 20th century.

The basic structure of colleges and universities will remain the same as today. They will continue to perform a combination of research, teaching, and public service. However, we expect enrollments in existing colleges to increase dramatically and some new colleges to be founded. We believe that existing student-aid programs, generally based on need, are confusing and unfair. Under our plan, federal funding will be provided directly to colleges and universities to replace whatever they are now receiving in the form of student tuition, and to provide textbooks to students. This funding will be possible as a result of a new tax."

By reducing the costs of attending college, it is expected that many more students will attend. However, the EPIC report points out that students will still have to pay for room and board, and they will still have to be able to afford to spend time studying and attending classes.

The new tax that Dr. Fiscal mentioned is a tax on automobiles and other motorized vehicles, based on the horsepower of the vehicle's engine. The tax will be levied on manufacturers and included as part of the sales price. The horsepower tax on mopeds, motor scooters, and low-powered motorcycles will be quite small. The tax on subcompact and compact cars is expected to be about $1,000 per car, while the tax on midsize cars will be about $3,000. Purchasers of station wagons, vans, and sports cars will face a tax of $5,000 or more. According to Dr. Fiscal, "This new tax will provide other important benefits. Powerful incentives will be provided to reduce our use of energy. It is critical that we do this as we look to the 21st century."

Some well-known economists have expressed skepticism about the proposal. They are especially concerned about the possible adverse effects of the horsepower tax. But the plan is expected to have a great deal of support in Congress because it deals with two politically popular topics, education and energy conservation.

Discussion questions:

1. Which of the broad social goals of an economic system will be strengthened by this plan?

2. Does this plan involve any conflicts among the five broad social goals? Explain.

3. Explain why you would vote for or against this plan, or how you would recommend modifying it, if you were a member of Congress.

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LESSON THREE
A MARKET IN WHEAT

INTRODUCTION

The most important economic institution in a market economy is, not surprisingly, the market. Markets allocate resources to the uses that individual buyers value most, in terms of what they are willing to pay for different goods and services. This lesson explains how a price is set in one particular market. Later lessons explain why prices change over time, and how different markets fit together to make up a market system. The overall system of markets provides answers to the basic economic questions facing all societies—what goods and services will be produced, how will they be produced, and to whom will they be distributed? Despite the importance of markets in a market system such as the U.S. economy, most people do not understand how they operate.

CONCEPTS

Supply
Demand
Price
Market

CONTENT STANDARDS

Prices are determined by the forces of supply and demand.

Demand is a schedule of how much consumers are willing and able to buy at all possible prices in a given period of time.

Supply is a schedule of how much producers are willing and able to sell at all possible prices in a given period of time.

If the price of a product increases, the quantity demanded will decrease and quantity supplied will increase, and vice versa.

OBJECTIVE

◆ Explain how the forces of supply and demand determine price, and how changes in the price of a good or service affect the quantities demanded and supplied.

LESSON DESCRIPTION

Students participate in a simulation which shows how a competitive market works. Although most markets for goods and services are not as competitive as the wheat market in this activity, by playing "A Market in Wheat" students gain a better understanding of how prices are determined in any market.

TIME REQUIRED

One class period.

MATERIALS

Thirty-two buy cards (Visual 1) and 32 sell cards (Visual 2). Use different colors for the buy and sell cards. Make cards in the following amounts:

BUY CARDS		SELL CARDS	
Buy Price	No.	Sell Price	No.
$ 3.50	2	$ 3.50	4
3.70	2	3.70	6
3.90	2	3.90	6
4.10	2	4.10	4
4.30	4	4.30	4
4.50	4	4.50	2
4.70	4	4.70	2
4.90	4	4.90	2
5.10	4	5.10	2
5.30	4		

One transparency of Visuals 3 and 4.

★ One copy of Activities 1, 2, 3, 4, and 5 for each student.

Note: This activity requires a class of at least 20 students to be effective. Up to 50 students can participate if your room is large enough.

PROCEDURE

1. Distribute Activity 1 and read it aloud. [*Note:* You may wish to assign one student to handle the distribution and collection of the buy and sell cards during the game, and another student to record each transaction on the Class Tally Sheet (Visual 3). Buy and sell cards should be kept in separate piles and shuffled between each of the three rounds.]

2. Clear a large area in the classroom and designate it as the marketplace.

3. Divide the class into two equal-sized groups. One group will be sellers, the other buyers. Explain that buyers will be buyers throughout the game and sellers will be sellers throughout the game.

4. Hand out individual score sheets (Activity 2) and explain that students should record their transactions on it. Review details of the score sheet if necessary.

5. Make sure students understand how to calculate "net gain" or "net loss," as explained on their score sheets.

6. Explain that you will conduct three rounds of trading lasting five minutes each. After the first round, tell students it was a practice round but that the next two rounds will count. Announce when one minute remains in each round.

7. Use Visual 3 to record transactions, as described in Activity 1.

8. After each of the trading rounds, including the practice round, allow students time to calculate their net gains or losses (gains minus losses). Before discussing the outcomes of the simulation (in Procedure 11), have students calculate their total net gain or net loss in rounds 2 and 3. At the end of Round 3, have students calculate the Grand Total, by summing the Totals for Rounds 2 and 3.

9. Encourage students to make as many deals as they can in the time permitted. Explain that it is permissible to take a loss in order to get a new transaction card. Try not to reveal the fact that the students who have the highest net gain are often those who engage in the most transactions. This will be discovered during the discussion following completion of the game.

10. During the time between trading rounds, direct students' attention to the record of all transactions on the Class Tally Sheet (Visual 3). Point out that it contains useful information for them. Do not elaborate.

11. Conduct postgame discussion:

A. At what price was wheat most frequently sold in each round? (Have students examine data on their score sheets and on the Class Tally Sheet.)

B. In which round did the greatest spread in prices occur? (Examine data.)

C. Why did the prices become more clustered in later rounds? (Competition among buyers and sellers based on greater information is the most important cause. Markets tend to move toward an equilibrium price as buyers and sellers obtain information about the quantity of products available at different prices.)

D. Did buyers or sellers determine the final market price for wheat? (Both buyers *and* sellers determined the market price by their interaction in the marketplace.)

E. How did competition among sellers and buyers influence price? (Because of competition within both groups, no single buyer or seller controlled the price. Note that buyers compete with other buyers, sellers with other sellers.)

12. Explain that in later lessons you will see what happens to demand and supply when factors other than price change, e.g., consumer income or production costs. But first, you want to study the effects of different prices in this market more carefully.

13. Distribute Activities 3 and 4. Inform students that the information on buyer and seller cards can be converted to supply and demand schedules and used to construct a graph which describes the behavior of buyers and sellers. The focal point of the graph—the point at which the line for market supply and the line for market demand intersect—is called the market clearing price or the equilibrium price of the product traded (in this case, wheat).

Tell students to construct the graph by placing dots at the points that correspond to all combinations of prices and quantities shown in the supply schedule on Activity Sheet 4. Then do the same, but use small crosses instead of dots, for the

demand schedule. Connect the dots to produce the supply schedule; connect the crosses to produce the demand schedule. Tell students to label each curve. When they have finished, project Visual 4 and have students compare their graphs to it. Assist students who had difficulty.

Tell the class the graph indicates that, given enough time, this competitive market would generate a market price of $4.30 per bushel. At that price, 240 bushels of wheat would be sold. Typically, a price of about $4.30 will not prevail until students play several rounds of the game. But, in later rounds, their transactions should converge toward the market price.

14. After students complete the graphing exercise, summarize the important points by asking:

A. What does the demand schedule show? (The quantities of wheat people are willing and able to buy at all possible prices. Explain that this entire schedule is what economists call "demand.")

B. What does the supply schedule show? (The quantities of wheat people are willing to sell at all possible prices. Explain that this entire schedule is what economists call "supply.")

C. When the only thing that changes is the price of a product, what relationship exists between the price of a good or service and the quantity people are willing to buy? (As price rises the quantity demanded decreases, and vice versa.)

D. When the only thing that changes is the price of a product, what relationship exists between the price of a good or service and the quantity producers are willing to sell? (When price rises, the quantity supplied increases, and vice versa.)

ASSESSMENT

1. Have one-half of the students visit grocery stores, inform the managers that they are studying economics, and ask the managers to estimate the quantity of _____ (a product chosen by the class for which there are many buyers and sellers) that is likely to be sold by that store in a typical month at each of five appropriate prices selected by the class.

2. Have the remaining one-half of the students interview the person in their house who buys groceries, asking that person to estimate the quantity of _____ (the same product) that the person would buy in a typical month at each of the same five prices selected by the class.

3. In class, list in a column, labeled price, the five prices on which the survey was based, sum the quantities all sellers indicated during the store interviews they expected to be able to sell at each price, and write the total quantity in a column beside the appropriate price. Label the column "total quantity." Remind students that the array of resulting prices and quantities represents the supply of the product. Note how quantities change as prices change.

4. For each of the five prices, sum the quantities all buyers indicated they expected to buy during the home interviews, and write the number beside the price. Label the column "total quantity." Remind students that the array of resulting prices and quantities represents the demand for the product. Note how quantities change as prices change.

5. Plot the numbers in the columns on a graph, and identify the market clearing (i.e., equilibrium) price and quantity. Compare the equilibrium price with the current price of the good in the stores. If there is a difference at some stores, are there other factors that help to explain the difference? (E.g., prices at 24-hour convenience stores may be higher, because these stores sell the convenience of easy parking and being open all day as well as the product itself.)

6. Explain that the insights learned in "A Market in Wheat" and the field surveys explain how market prices are determined for any product for which there are many buyers and sellers.

ACTIVITY 1
HOW TO PLAY "A MARKET IN WHEAT"

Name _____

Read these instructions carefully as your teacher reads them aloud.

1. Each buyer will have only one buy order at a time. It will say, "You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than _____ per bushel, or more than a total of _____, you lose money." The exact price and total will be written on the order. **DO NOT REVEAL THE PRICE.** Record the price of your buy order on your student score sheet. When the round starts, try to buy at the lowest price you can. You may, if necessary, buy at a price higher than the price on your buy card in order to obtain your wheat. As soon as you have bought wheat, record the transaction on your score sheet. Then turn the buy and sell cards in and get another buy order. If you do not buy wheat during a round, return your buy order after the round is finished.

2. Each seller will have only one sell order at a time. It will say, "You are authorized to **SELL** 10 bushels of wheat for as **much** as possible. If you accept less than _____ per bushel, or less than a total of _____, you lose money." The exact price and total will be written on the order. **DO NOT REVEAL THE PRICE.** Record the price of your sell order on your student score sheet. When the round starts, try to sell your wheat at the highest price you can. You may, if necessary, sell at a price lower than that on your sell order in order to get rid of your wheat. As soon as you have sold wheat, record the transaction on your score sheet. Then go to the teacher or recorder to report the selling price and get another seller card. If you do not sell wheat during a round, return your order after the round is finished. Remember, you must report the price to the recorder after each deal.

3. When the teacher says "The market is open," sellers and buyers should meet and try to agree on a price for 10 bushels of wheat. Any buyer can talk with any seller.

4. The goal of both buyers and sellers is to make as much money as they can. The buyers do this by buying wheat for a lower price than the one shown on their cards. The sellers make money by selling for a higher price than the price shown on their cards.

5. All students are free to make as many transactions in a round as time permits.

6. Every time a seller reports an agreement to the recorder, it will be entered on the class tally sheet. **WATCH THE TALLY SHEET SO THAT YOU WILL KNOW WHAT PRICES ARE BEING PAID.**

7. As soon as buyers and sellers receive new cards during a round, they should return to the marketplace and try to make another deal.

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ACTIVITY 2
SCORE SHEET FOR "A MARKET IN WHEAT"

Name _____

How to Use the Score Sheet

Keep track of your progress during the game on this score sheet. Tally your gains and losses by taking the difference between the dollar value of 10 bushels that is stated on your card and the dollar value of the deal you made. If you are a buyer, you gain whenever you buy at a **LOWER** total than the amount shown on your card. If you buy at a higher total, you suffer a loss.

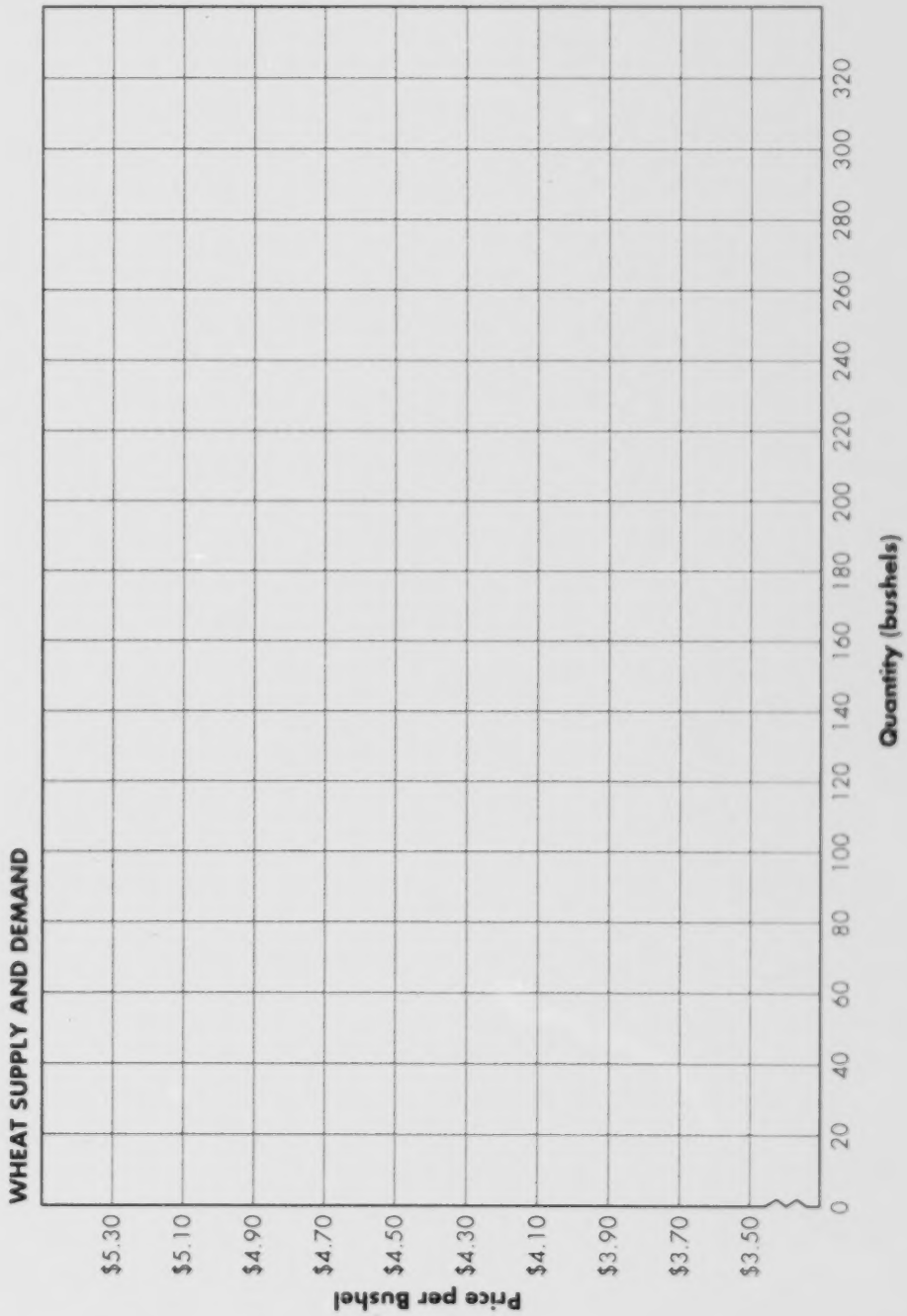
If you are a seller, you gain whenever you sell at a **HIGHER** total than the amount shown on your card. At a lower total, you suffer a loss.

When the teacher instructs you to do so, total your gains and losses and write them in the designated spaces.

Transaction Number	Price Per Bushel		Dollar Value of 10 Bushels		Gain	Loss	Total Profit (gains minus losses)
	On Card	In Transaction	On Card	In Transaction			
1							
2							
3							
4							
TOTAL FOR ROUND 1 (practice)							
1							
2							
3							
4							
TOTAL FOR ROUND 2							
1							
2							
3							
4							
TOTAL FOR ROUND 3							
GRAND TOTAL, ROUNDS 2 AND 3							

ACTIVITY 3
WHEAT SUPPLY AND DEMAND

Name _____



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ACTIVITY 4

Name _____

SUPPLY SCHEDULE:

In the following table, the supply schedule in the third column equals the cumulative number of bushels of wheat available for sale at the price indicated. The cumulative total is found by adding up in the second column all the bushels produced at a given price and at all lower prices. (Obviously, any producer willing to sell 40 bushels at a price of $3.50 will still be willing to sell those 40 bushels at a higher price.)

Price	***Number of Sellers Willing to Sell 10 Bushels of Wheat at the Price Indicated or at a Lower Price***	*Supply Schedule*
$3.50	4 sellers (= 40 bushels)	40
3.70	6 sellers (= 60 bushels)	100
3.90	6 sellers (= 60 bushels)	160
4.10	4 sellers (= 40 bushels)	200
4.30	4 sellers (= 40 bushels)	240
4.50	2 sellers (= 20 bushels)	260
4.70	2 sellers (= 20 bushels)	280
4.90	2 sellers (= 20 bushels)	300
5.10	2 sellers (= 20 bushels)	320

DEMAND SCHEDULE:

In the following table, the demand schedule in the third column equals the cumulative number of bushels of wheat buyers would be willing and able to buy at the price indicated. The cumulative total is found by adding up in the second column the bushels purchased at a given price and at all higher prices. (Obviously, any consumer willing to buy 40 bushels at a price of $5.30 will still be willing to buy those 40 bushels at a lower price.)

Price	***Number of Buyers Willing to Buy10 Bushels of Wheat at the Price Indicated or At a Higher Price***	*Demand Schedule*
$5.30	4 buyers (= 40 bushels)	40
5.10	4 buyers (= 40 bushels)	80
4.90	4 buyers (= 40 bushels)	120
4.70	4 buyers (= 40 bushels)	160
4.50	4 buyers (= 40 bushels)	200
4.30	4 buyers (= 40 bushels)	240
4.10	2 buyers (= 20 bushels)	260
3.90	2 buyers (= 20 bushels)	280
3.70	2 buyers (= 20 bushels)	300
3.50	2 buyers (= 20 bushels)	320

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VISUAL 1
BUY CARDS

You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than $5.30 per bushel, or more than a total of $53.00, you lose money.	You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than $5.10 per bushel, or more than a total of $51.00, you lose money.	You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than $4.90 per bushel, or more than a total of $49.00, you lose money.
You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than $4.70 per bushel, or more than a total of $47.00, you lose money.	You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than $4.50 per bushel, or more than a total of $45.00, you lose money.	You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than $4.30 per bushel, or more than a total of $43.00, you lose money.
You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than $4.10 per bushel, or more than a total of $41.00, you lose money.	You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than $3.90 per bushel, or more than a total of $39.00, you lose money.	You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than $3.70 per bushel, or more than a total of $37.00, you lose money.
	You are authorized to **BUY** 10 bushels of wheat, paying as **little** as possible. If you pay more than $3.50 per bushel, or more than a total of $35.00, you lose money.	

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VISUAL 2
SELL CARDS

You are authorized to **SELL** 10 bushels of wheat for as **much** as possible. If you accept less than $5.10 per bushel, or less than a total of $51.00, you lose money.	You are authorized to **SELL** 10 bushels of wheat for as **much** as possible. If you accept less than $4.90 per bushel, or less than a total of $49.00, you lose money.	You are authorized to **SELL** 10 bushels of wheat for as **much** as possible. If you accept less than $4.70 per bushel, or less than a total of $47.00, you lose money.
You are authorized to **SELL** 10 bushels of wheat for as **much** as possible. If you accept less than $4.50 per bushel, or less than a total of $45.00, you lose money.	You are authorized to **SELL** 10 bushels of wheat for as **much** as possible. If you accept less than $4.30 per bushel, or less than a total of $43.00, you lose money.	You are authorized to **SELL** 10 bushels of wheat for as **much** as possible. If you accept less than $4.10 per bushel, or less than a total of $41.00, you lose money.
You are authorized to **SELL** 10 bushels of wheat for as **much** as possible. If you accept less than $3.90 per bushel, or less than a total of $39.00, you lose money.	You are authorized to **SELL** 10 bushels of wheat for as **much** as possible. If you accept less than $3.70 per bushel, or less than a total of $37.00, you lose money.	You are authorized to **SELL** 10 bushels of wheat for as **much** as possible. If you accept less than $3.50 per bushel, or less than a total of $35.00, you lose money.

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VISUAL 3
CLASS TALLY SHEET

Price per Bushel	Round 1 (practice)	Round 2	Round 3	Total of Rounds 2 and 3
$3.50				
$3.70				
$3.90				
$4.10				
$4.30				
$4.50				
$4.70				
$4.90				
$5.10				
$5.30				

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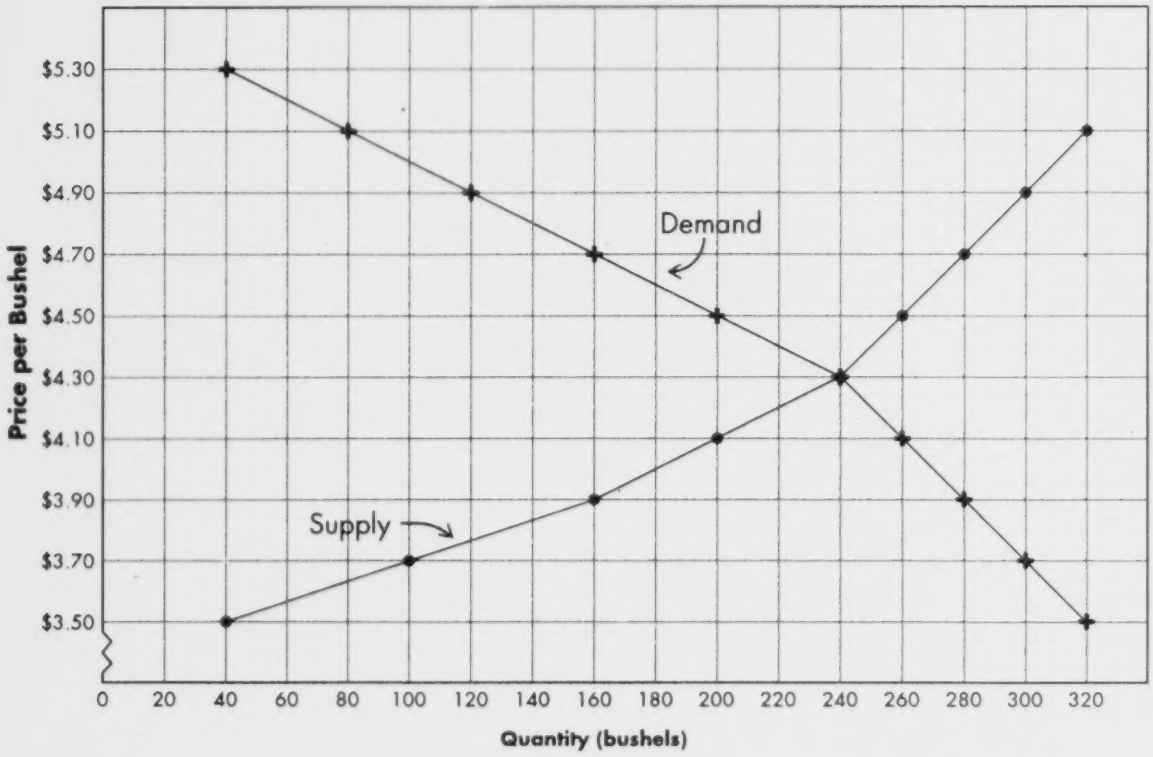
VISUAL 4



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LESSON FOUR
THE MARKET NEVER STANDS STILL

INTRODUCTION

Prices of goods and services fluctuate as conditions that influence the behavior of buyers and sellers change. This lesson examines the major reasons for such changes in supply and demand, and the resulting effects of these changes on market prices.

CONCEPTS

Demand
Determinants of shifts in demand
Supply
Determinants of shifts in supply

CONTENT STANDARDS

There is a negative (inverse) relationship between price and quantity demanded, shown by moving along a demand curve.

Demand for a product will normally change (the demand curve will shift) if there is a change in consumers' incomes, tastes and preferences, or the prices of related (complementary or substitute) products.

There is a positive (direct) relationship between price and quantity supplied, shown by moving along a supply curve.

Supply of a product will normally change (the supply curve will shift) if there is a change in technology, in prices of inputs, or in the prices of other products that could be made and sold by producers.

OBJECTIVE

◆ Explain how demand and supply shift in response to changes in these determinants, and predict the effects of changes in demand and supply on market price and quantity.

LESSON DESCRIPTION

Working in pairs or small groups, students complete several worksheets to study the factors (determinants) that affect the position of supply and demand curves in order to understand why market prices and output levels fluctuate. After learning these determinants, students predict the effects of changes in the determinants on market prices and quantities.

TIME REQUIRED

Two class periods. Day one—procedures 1-9. Day two—procedures 10-16 and Assessment.

MATERIALS

★ Classroom quantities of Activities 1 to 6.
One transparency of Visual 1.

PROCEDURE

1. Distribute copies of Activity 1. Read the directions for Part I, and have students complete the tasks described. Have students explain their predictions to one another to see if there is a consensus, or confusion. At this point, do not try to correct students but make certain they are aware of any confusion or contradictions in their discussions. Read the directions for Part II, direct students to complete it, and have them explain their answers in the same way they discussed Part I.

2. Distribute copies of Activity 2. Again, read the directions for Part I, and have students complete the tasks described. As before, have students explain their answers to other students to see if there is a consensus, or confusion. Again, do not try to correct students at this time. Do Part II in the same manner.

3. Project a transparency of Visual 1, and inform students that confusion of the kind possibly encountered in Activities 1 and 2 can be eliminated by using diagrams that show changes in demand and supply and their effects on prices.

4. Use the top half of the transparency to explain that an increase in demand for a product means a larger quantity is demanded at every price. This is represented by the shift from curve D_1 to curve D_2. Conversely, a shift from D_2 to D_1 represents a smaller quantity demanded at every price, or a decrease in demand.

★ all students—basic course material
■ average and above average students

5. Emphasize that an increase in the demand for doughnuts means that more doughnuts are demanded at every price. Provide students with practice in interpreting the graph. *Ask*:

A. What quantity of doughnuts is demanded at point A? (20) At point B? (40)

B. What quantity is demanded at point C? (40) At point D? (60)

C. What quantity is demanded at point E? (50) At Point F? (70)

D. What conclusion can be drawn from these data? (On demand curve D_2, 20 more doughnuts are demanded at every price than on demand curve D_1.)

6. Ask students to predict how one should draw a curve that illustrates a decrease in demand from D_1, and explain why. Draw such a curve, and label it D_0. (Curve D_0 should be to the left of D_1.)

7. Ask the students whether a movement from point A to point C on curve D_1 shows an increase in the demand for doughnuts? (No. It shows an increase in the quantity demanded, caused by a decrease in price from $2.00 to $1.00. It does not show that more doughnuts were demanded at all prices—e.g., at $2.00 the quantity demanded does not change. Stress that a movement along a demand curve is called a change in the quantity demanded; a shift in the position of the entire curve is called a change in demand. This verbal distinction will be vital later in correcting any confusion encountered in Activities 1 and 2.)

8. Pass out copies of Activity 3, go over the instructions, and have students work in small groups to complete the activity sheet, using Part II of Activity 1 as a reference. Discuss the answers to the handout.

9. Review Part I of Activity 1, and instruct all students who formed one or more incorrect hypotheses at the start of the lesson to correct their mistakes on Activity 1.

10. Project the transparency of Visual 1 again. Using the bottom half, point out to students that a movement from curve S_1 to curve S_2 is an increase in supply, because the quantity supplied increases for every price. A shift from curve S_2 to S_1 indicates a decrease in quantity supplied at every price, so this is a decrease in supply.

11. Emphasize that an increase in the supply of doughnuts means that more doughnuts are supplied at every price. Ask:

A. What quantity of doughnuts is supplied at point A? (60) At point B? (70)

B. What quantity is supplied at point C? (40) At Point D? (50)

C. What quantity is supplied at point E? (30) At point F? (40)

D. What conclusions can be drawn from these data? (On supply schedule S_2, 10 more doughnuts are supplied at every price compared to schedule S_1.)

12. Ask students to predict how one should draw a curve that illustrates a decrease in supply from S_1. Draw such a curve, and label it S_0. (Curve S_0 should be to the left of S_1.)

13. Ask students whether a movement from point D to point B shows an increase in the supply of doughnuts. (No. It only shows an increase in the quantity supplied, caused by the increase in price from $1.00 to $2.00. At the price of $1.00, more doughnuts are *not* supplied. Stress that a movement along a supply curve is only a change in the quantity supplied; a shift of the entire curve is called a change in supply. This verbal distinction is crucial to understanding one another in discussing economic topics, because the two phrases clearly refer to very different things.)

14. Distribute a copy of Activity 4 to each student. Go over the instructions. Have students work in small groups to complete the handout, using Part II of Activity 2 as a reference. Discuss the answers.

15. Review Activity 2 and instruct all students

who suggested one or more incorrect hypotheses at the start of the lesson to correct their mistakes on Activity 2.

16. Distribute a copy of Activity 5 to each student. After students have completed the worksheet, go over their answers in class to reinforce understanding.

Opportunity for Less Able Students

From Part II of Activities 1 and 2, make a list of determinants of changes in demand and supply. List each determinant on the chalkboard as the heading for a separate column. Ask students: (1) to choose a product they buy for which prices have changed recently and (2) to suggest as many possible causes for the change as they can think of. As students name possible causes, help the students group them under the appropriate column on the board. When students are unable to think of any additional possible causes, explain that the causes of all price changes can be analyzed by considering which of the factors represented by each column may have changed. Have students practice using this idea by asking them to select a second product whose price has recently changed. Discuss the possible causes of the price change, and show how these causes are specific examples of general forces represented by the labels in the columns. Pick a third example, and this time start with the column headings, and ask students to give an example of some event that *might* have occurred to cause this determinant to make the price change in the way it did.

ASSESSMENT

1. Encourage students to visit a business selling a product in which they are interested. Ask the owner or manager to identify the last time prices for the product changed. Also ask him or her to list as many reasons as possible why the price changed. In class, review the determinants of changes in demand and supply. Help students put the reasons for the price change that were suggested by the owner/manager into categories that list the appropriate determinants of supply or demand. Put students into cooperative learning groups, and draw graphs that reflect the reasons for changes in price uncovered during their interviews—i.e., show the shifts in supply and/or demand.

2. Conduct one or more additional rounds of the Wheat Market Game (see Lesson 3), but this time cut the number of *sell* cards available at each price in half. Have students record their transaction prices and gains or losses on their score sheets. Examine the class tally sheet and ask students to explain how and why prices changed as they did, compared to the original version of the curve. (Prices should increase because of the decrease in supply.)

3. Next, conduct one or more additional rounds of the Wheat Market Game with the number of *buy* cards at each price cut in half. Have students record their transactions. Examine the class tally sheet and ask students to explain how and why prices changed as they did, compared to the earlier version of the game. (Prices should decrease because of the decrease in demand.)

4. Distribute a copy of Activity 6 to each student, to assess students' understanding of the key ideas in this lesson.

ANSWERS TO ACTIVITIES

ACTIVITY 1

Part I:

1. No change in demand, only in quantity demanded
2. Increase
3. Decrease
4. Decrease
5. Decrease
6. Increase
7. Decrease

Part II:

Not listed, no change in demand—1
Consumer tastes—4, 6
Income—5
Number of consumers—2
Substitute—3
Complement—7

ACTIVITY 2

Part I:

1. Increase
2. Increase
3. Decrease
4. Increase
5. Decrease
6. Decrease
7. No change in supply, only in quantity supplied.
8. Decrease

Part II:

Not listed—no change in supply—7
Costs of factors of production—1, 3, 5
Technology—2
Number of sellers—4, 6
Profit opportunities from producing other products—8

ACTIVITY 3

Part I:

1. No change, C
2. Increase, D
3. Decrease, C
4. Decrease, B
5. Decrease, A
6. Increase, B
7. Decrease, A

Part II:

Not listed, no change in demand—1
Consumer tastes—4, 6
Income—5
Number of consumers—2
Substitute—3
Complement—7

ACTIVITY 4

Part I:

1. Increase, D
2. Increase, E
3. Decrease, D
4. Increase, E
5. Decrease, D
6. Decrease, C
7. No change, C
8. Decrease, B

Part II:

Not listed, no change in supply—7
Costs of factors of production—1, 3, 5
Technology—2
Number of sellers—4, 6
Profit opportunities from producing other products—8

ANSWERS TO ACTIVITIES (continued)

ACTIVITY 5

1. E_1, equilibrium price = .80; equilibrium quantity = 40 million gallons
2. Quantity demanded equals quantity supplied, and that is only true at this price
3. E_2, Equilibrium price = 1.20, equilibrium quantity = 55 million gallons
4. E_3, equilibrium price = 1.60, equilibrium quantity = 40 million gallons

Question 3 and 4 Demand Schedule

If the Price of Gasoline is:	Consumers Would be Willing to Buy:
$0.40	85 million gallons
0.80	70
1.20	55
1.60	40
2.00	35
2.40	31

Question 4 Supply Schedule

If the Price of Gasoline is:	Producers Would be Willing to Sell:
$0.40	–5 million gallons (i.e., will sell nothing)
0.80	10
1.20	25
1.60	40
2.00	55
2.40	60

ACTIVITY 6

A. The schedule showing how much of a product producers are willing and able to sell at all possible prices.

B. The schedule showing how much of a product consumers are willing and able to buy at all possible prices.

C. Law of Supply: Producers are willing to sell more of a product at higher prices and less at lower prices.

Law of Demand: Consumers are willing to buy more of a product at lower prices and less at higher prices.

D. 1. Greater
2. Less
3. Decrease
4. Remain Unchanged

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ACTIVITY 1
REASONS FOR CHANGES IN DEMAND

Name _____

Part I

Read the following seven newspaper headlines. In each case decide if the event will cause a change in the market demand for beef. If so, determine if it is an increase or a decrease, and write the correct answer. For example, if you think headline 1 means there will be a decrease in demand, write "decrease" in the first blank. For headline 2, if you think demand will increase, write "increase". If the event causes no change in demand, write "no change."

1. PRICE OF BEEF TO RISE
   Demand _____

2. MILLIONS OF IMMIGRANTS SWELL U.S. POPULATION
   Demand _____

3. PORK PRICES DROP
   Demand _____

4. SURGEON GENERAL WARNS THAT EATING BEEF CAN BE HAZARDOUS TO HEALTH
   Demand _____

5. TAKE-HOME PAY FOR AMERICANS DROPS 3RD MONTH IN ROW
   Demand _____

6. NATIONWIDE FAD: THE RAP-BURGER
   Demand _____

7. HIGHER PRICE FOR CHARCOAL THREATENS MEMORIAL DAY COOKOUTS
   Demand _____

Part II

Put each change in demand from Part I into one of the following categories, based on the reason for the change. Write the number of the headline(s) next to the appropriate reason for the change in demand. Some categories may have more than one headline number, and any event that did not change demand should *not* be listed with any of the determinants.

____ A change in consumer tastes

____ A change in consumer incomes

____ A change in the number of consumers in the market

____ A change in the price of a substitute good

____ A change in the price of a complementary good

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ACTIVITY 2
REASONS FOR CHANGES IN SUPPLY

Name _____

Part I

Read the following eight newspaper headlines. In each case, decide if the event will cause any change in the market supply of cars. If so, determine if it is an increase or a decrease, and write the correct answer. For example, if you think headline 1 means there will be a decrease in supply, write "decrease" in the first blank. For headline 2, if you think supply will increase, write "increase". If the event causes no change, write "no change."

1. AUTO WORKERS AGREE TO WAGE AND FRINGE CUTS
   Supply _____

2. NEW ROBOT TECHNOLOGY INCREASES EFFICIENCY IN DETROIT FACTORIES
   Supply _____

3. NATIONWIDE AUTO STRIKE BEGAN AT MIDNIGHT
   Supply _____

4. QUOTAS ELIMINATED: FOREIGN CAR IMPORTS RISE
   Supply _____

5. STEEL PRICES RISE 10%
   Supply _____

6. LARGE AUTO PRODUCER GOES BANKRUPT, CLOSES FACTORIES
   Supply _____

7. BUYERS REJECT NEW CAR MODELS; SELLERS LOWER PRICES
   Supply _____

8. SHORTAGES ABOUND IN CONSUMER ELECTRONICS—CONSUMERS CAN'T BUY ENOUGH NEW GAMES AND GADGETS
   Supply _____

Part II

Put each change in supply from Part I into one of the following categories, based on the reason for the change. Write the number of the headline next to the appropriate reason for the change in supply. Some categories may have more than one headline number, and any event that did not change supply should *not* be listed with any of the determinants.

____ A change in the cost of factors of production

____ A change in technology

____ A change in the number of sellers in the market

____ A change in profit opportunities from producing other products

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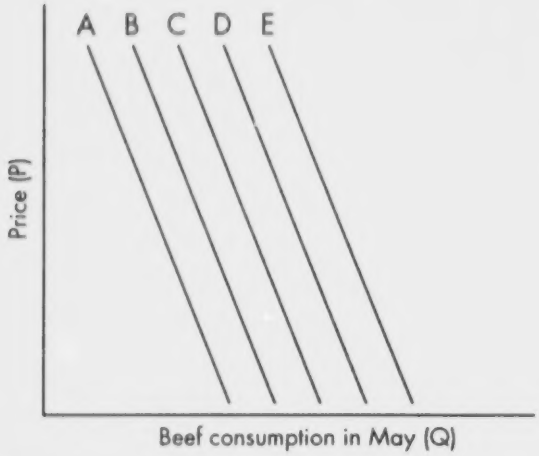
ACTIVITY 3
REASONS FOR CHANGES IN DEMAND

Name _____



Part I

Read the following eight newspaper headlines. In each case decide if the event will cause a change in the demand for beef. If so, determine if it is an increase or a decrease, and write the correct answer. Begin at curve C. If you think headline 1 means there will be a decrease in demand, write "decrease" in the first blank and "B" in the second blank; move to curve B to do headline 2. Or, if you think headline 1 means demand will increase, write "increase" and "D" in the blanks for headline 1; move to curve D to do headline 2.

Move only one curve at a time. Do not skip two curves, say from A to C, even if you think the headline means there will be a large change in demand. Do not go beyond the five curves. If you are at A and the next headline implies a decrease in demand, you goofed somewhere. There is one headline which implies that the demand for beef does *not* change.

1. PRICE OF BEEF TO RISE
   Demand _____ Curve _____

2. MILLIONS OF IMMIGRANTS SWELL U.S. POPULATION
   Demand _____ Curve _____

3. PORK PRICES DROP
   Demand _____ Curve _____

4. SURGEON GENERAL WARNS THAT EATING BEEF CAN BE HAZARDOUS TO HEALTH
   Demand _____ Curve _____

5. TAKE-HOME PAY FOR AMERICANS DROPS 3RD MONTH IN ROW
   Demand _____ Curve _____

6. NATIONWIDE FAD: THE RAP-BURGER
   Demand _____ Curve _____

7. HIGHER PRICE OF CHARCOAL THREATENS MEMORIAL DAY COOKOUTS
   Demand _____ Curve _____

Part II

Put each change in demand from Part I into one of the following categories, based on the reason for the change. Write the number of the headline(s) next to the appropriate reason for the change in demand. Some categories may have more than one headline number, and any event that did not change demand should *not* be listed with any of the determinants.

____ A change in consumer tastes

____ A change in the number of consumers in the market

____ A change in consumer incomes

____ A change in the price of a substitute good

____ A change in the price of a complementary good

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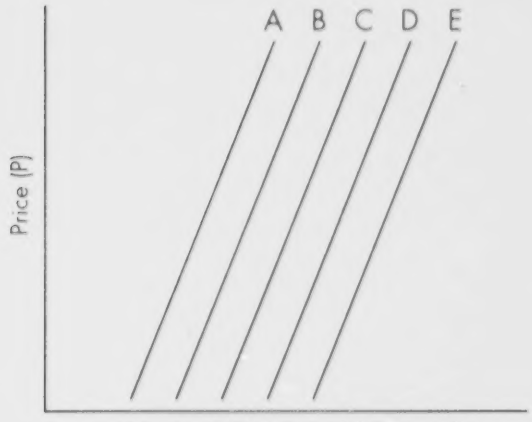
ACTIVITY 4
REASONS FOR CHANGES IN SUPPLY

Name _____



Supply of foreign and domestically produced cars in the U.S. (Q)

Part I

Read the following eight newspaper headlines. In each case, decide if the event will cause any change in the supply of cars. If so, determine if it is an increase or a decrease, and write the correct answer. Begin at curve C. If you think headline 1 means there will be a decrease in supply, write "decrease" in the first blank and "B" in the second blank; move to curve B to do headline 2. Or, if you think headline 1 means supply will increase, write "increase" and "D" in the blanks for headline 1; move to curve D to do headline 2.

Move only one curve at a time. Do not skip two curves, say from A to C, even if you think the headline means there will be a large change in supply. Do not go beyond the five curves. If you are at A and the next headline implies a decrease in supply, you goofed somewhere. There is one headline which implies that the supply of cars does *not* change.

1. AUTO WORKERS AGREE TO WAGE AND FRINGE CUTS
   Supply _____ Curve _____
2. NEW ROBOT TECHNOLOGY INCREASES EFFICIENCY IN DETROIT FACTORIES
   Supply _____ Curve _____
3. NATIONWIDE AUTO STRIKE BEGAN AT MIDNIGHT
   Supply _____ Curve _____
4. QUOTAS ELIMINATED: FOREIGN CAR IMPORTS RISE
   Supply _____ Curve _____
5. STEEL PRICES RISE 10 PERCENT
   Supply _____ Curve _____
6. LARGE AUTO PRODUCER GOES BANKRUPT, CLOSES OPERATION
   Supply _____ Curve _____
7. BUYERS REJECT NEW CAR MODELS: SELLERS LOWER PRICES
   Supply _____ Curve _____
8. SHORTAGES ABOUND IN ELECTRONICS: CONSUMERS CAN'T BUY ENOUGH NEW GAMES AND GADGETS
   Supply _____ Curve _____

Part II

Put each change in supply from Part I into one of the following categories, based on the reason for the change. Write the number of the headline(s) next to the appropriate reason for the change in supply. Some categories may have more than one headline number, and any event that did not change supply should *not* be listed with any of the determinants.

____ A change in the cost of factors of production

____ A change in technology

____ A change in the number of sellers in the market

____ A change in profit opportunities producing other products

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ACTIVITY 5
CHANGES IN SUPPLY AND DEMAND CHANGE MARKET PRICE AND QUANTITY

Name _____

Economists studied the gasoline market to find out how many millions (M) of gallons consumers would be willing to buy each day and how many gallons sellers would be willing to sell each day at various prices. This research showed that:

If the price of a gallon of gasoline was:	Consumers would be willing to buy:	Producers would be willing to sell:
$0.40	55 M gallons	25 M gallons
0.80	40 M gallons	40 M gallons
1.20	25 M gallons	55 M gallons
1.60	10 M gallons	70 M gallons
2.00	5 M gallons	85 M gallons
2.40	1 M gallons	90 M gallons

1. According to the table, the market clearing (or equilibrium) price for gasoline is _____ and at this price the number of gallons of gasoline bought and sold is _____. Label the equilibrium price E_1.

2. How do you know this is the market clearing price? _____
_____

3. Assume that big gas-guzzling cars become very popular again. Because consumers buy so many gas guzzlers, they want to buy 30 million more gallons of gasoline per day at every price. For example, at $.40 per gallon people now want to buy 85 million gallons rather than 55 million. Write a new table showing the amount that people would like to buy at each price. What is the new market-clearing price? _____ How many gallons will be bought and sold at this price? _____ Label the new equilibrium price E_2.

4. Now assume that two oil producing countries get into a war and destroy each other's oil wells. Because of this, sellers are willing to sell 30 million fewer gallons of gasoline per day at every price. For example, at $.80 per gallon sellers are willing to sell only 10 million gallons rather than 40 million gallons. Write another table showing the new amount that people would like to sell at each price. What is the new market-clearing (or equilibrium) price, assuming the demand schedule from question 3 is used again? _____ How many gallons will be bought and sold at this price? _____ Label this new equilibrium price E_3.

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ACTIVITY 6
MARKET GAME TEST

Name _____

A. What does the term "supply" mean?

_____

_____

_____

_____

B. What does the term "demand" mean?

_____

_____

_____

_____

C. In your own words, explain the law of supply and demand, i.e., (1) the relationship between quantity supplied and price and (2) the relationship between quantity demanded and price.

_____

_____

_____

_____

D. Use the following terms to complete the sentences below. You will not need to use all of the terms.

Increase	Remain Unchanged	Less
Decrease		Greater

1. If everything else remains the same, the amount of wheat available for sale at a price of $4.90 per bushel will usually be _____ than the amount available for sale at a price of $3.90 per bushel.

2. However, the amount of wheat demanded would be _____ at $4.90 than at $3.90 per bushel.

3. All other things being equal, if the demand for wheat falls, then the market price for wheat will _____.

4. If the supply of wheat for sale doubles and the demand for wheat doubles, the price of wheat will probably _____.

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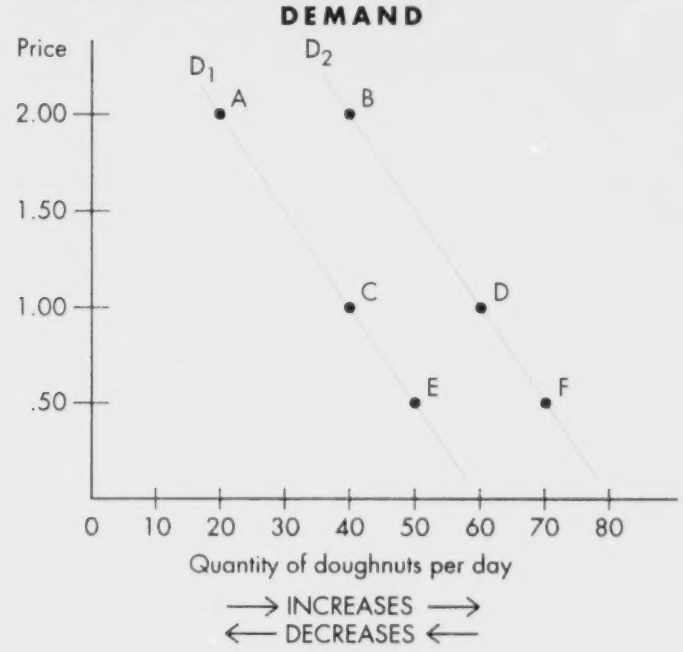
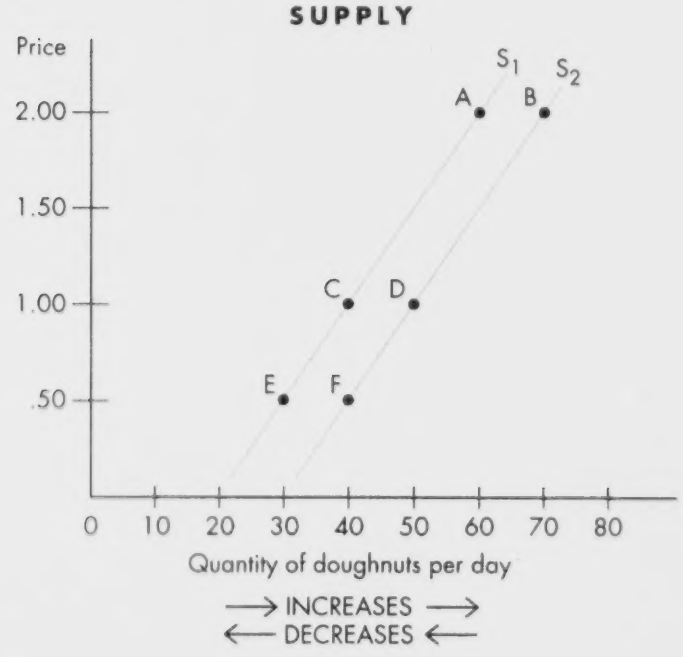
VISUAL 1
SHIFTS IN DEMAND AND SUPPLY DEMAND





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LESSON FIVE
MARKETS INTERACT

INTRODUCTION

Supply and demand analysis is a useful tool to show the impact of market changes on equilibrium price and quantity. More importantly, the analysis illustrates how markets are interdependent and how a change in one market can affect the equilibrium prices and quantities in related markets.

CONCEPTS

Markets and prices
Supply and demand

CONTENT STANDARDS

Prices for different products are interrelated.

When interdependence is present, a single economic unit is ultimately affected by many of the decisions or events that initially affect its trading partners.

OBJECTIVES

◆ Analyze how changes in determinants of supply or demand affect market prices and quantities exchanged.

◆ Analyze how changes in one market may affect other markets.

LESSON DESCRIPTION

Through supply and demand analysis and the development of a flow chart, students investigate how markets interact.

TIME REQUIRED

One class period.

MATERIALS

★ One copy of Activity 1, cut apart
One 8 ½" x 11" sheet of paper for each group
Yarn and tape

PROCEDURE

1. Review how changes in demand or supply bring about changes in equilibrium price and quantity exchanged. (See Lesson 4.)

2. Explain that a change in one market tends to affect related markets. For example, if the costs of producing beef increase, the supply of beef will decrease, which will increase the price of beef and reduce the quantity exchanged. When the price of beef increases, the market for pork will be affected. The demand for pork will increase because of an increase in the price of a substitute good. As a result, the price of pork will increase and the quantity of pork exchanged will increase.

3. Divide the class into nine groups. Distribute a sheet of paper and a card from Activity 1 to each group. Explain that each group represents the market listed on its card. Instruct each group to write the name of its market at the top of the sheet of paper and draw a supply and demand diagram.

4. Explain that the "News Event" on each card describes something that has happened which affects the market. Instruct each group to (a) determine whether supply or demand has been affected, (b) describe how and why it has changed, (c) draw the change on its diagram, and (d) indicate how equilibrium price and quantity have changed. When finished, each group should tape its card to the sheet of paper.

★ all students–basic course material
■ average and above average students

Market Changes:

Market #	S	D	P	Q	Reason for Change
1	=	↑	↑	↑	[increase in the number of consumers]
2	↓	=	↑	↓	[increase in the price of an input causes higher production costs]
3	=	↑	↑	↑	[increase in price of a substitute]
4	=	↓	↓	↓	[initially, a decrease in the number of consumers reduces demand; in time, supply will also decrease due to a decrease in the number of producers]
5	=	↓	↓	↓	[decrease in number of buyers (i.e., employers)]
6	↑	=	↓	↑	[increase in number of producers]
7	↑	=	↓	↑	[increase in number of producers (workers)]
8	↓	=	↑	↓	[increase in profits from producing other products]
9	=	↑	↑	=/↑	[increase in number of buyers (farmers) due to increased demand and profits for U.S. agricultural production; some students may argue that the amount of farmland in the United States is fixed, but there will probably be a small increase in the amount of land available for farming as rents increase]

5. As groups complete their diagrams, circulate among the groups to make sure their diagrams are correct.
Note: It is especially important to check if group #1 has shown an increase in demand. That group may be tempted to show a decrease in supply, but the supply of sugar produced in the U.S. has not changed.

6. Explain that the markets in this activity interact. A change in one market can affect another, which in turn can affect another. Instruct a spokesperson from each group to read its card and describe its supply and demand analysis.

7. Explain that the class will create a flow chart, using the diagrams drawn in procedure 4, to model how the markets interact. Discuss:

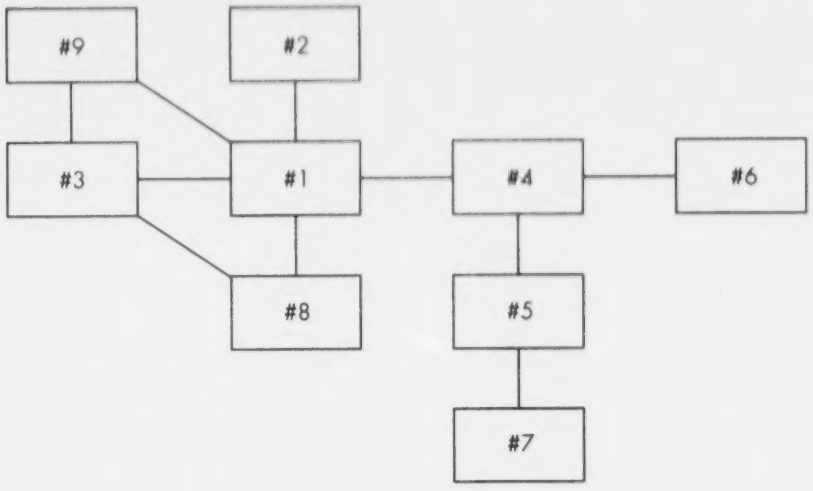
A. Which market/news event has initiated the market changes? (Market 1.) Tape the diagram to the wall.

B. Which market changes occurred directly because of the increase in the price of sugar? (Markets 2, 3, 4, 8, and 9.) Tape diagrams 2, 3, 4, and 8 around the four sides of the market 1 diagram, and tape a piece of yarn from market 1 to each of the four markets. See the sample flow chart below, after 7E. Tape a piece of yarn from market 1 to market 9 now, or after discussing market 3.

C. Are any market changes related to market 2? (No.) Market 3? (Yes, markets 8 and 9.) Market 4? (Yes, markets 5 and 6.) Tape yarn from market 4 to markets 5 and 6, and between markets 3 and 8 and 3 and 9.

D. Are any market changes related to markets 5 and 6? (None are related to market 6, but market 7 is related to market 5.) Tape yarn between those markets.

E. Are any market changes related to market 7? (No.)



Sample Flow Chart

8. Explain that the U.S. government really has used sugar quotas to support sugar prices and the incomes of sugar growers.* Instruct students to use the flow chart and supply and demand analysis to write a fictitious newspaper article about U.S. trade policy in the sugar market.

ASSESSMENT

1. Instruct groups to add new market events and analyses to the flow chart to demonstrate further possible market interactions. The events may be related to any of the cards from the lesson.

2. Instruct students to locate a newspaper article that shows how a change in one market has affected other markets. Based on the article, students should develop a flow chart similar to the model used in this lesson.

* The market changes described in this lesson are discussed in a series of *Wall Street Journal* articles: 9/26/86 (pp. 1, 20); 10/9/86 (p. 39); 12/16/86 (p. 14); and 6/26/90 (pp. 1, 11)

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ACTIVITY 1
MARKETS INTERACT

Name _____

Market: sugar produced in the United States **News Event:** The U.S. government reduces the amount of sugar that U.S. companies may import. As a result, U.S. sugar consumers, such as candy companies, will have to buy more sugar from U.S. sugar producers.	#1
Market: candy **News Event:** Because of a federal sugar policy designed to protect U.S. sugar producers, the price of sugar increases.	#2
Market: corn **News Event:** Because of a federal policy supporting sugar prices, soft-drink bottlers switch to using more high-fructose corn syrup as a substitute for sugar.	#3
Market: sugar market in Caribbean countries **News Event:** Because of decreased U.S. sugar quotas, sugar producers in Caribbean countries begin to reduce sugar production.	#4
Market: unskilled labor market in Caribbean countries **News Event:** Because of decreased sugar exports to the United States, sugar plantations are laying off workers and sugar mills are closing.	#5
Market: marijuana in Caribbean countries **News Event:** Because of a reduced demand for sugar grown in the Caribbean, some sugar growers begin to grow marijuana to earn more income.	#6
Market: unskilled labor market in the United States **News Event:** Because of lower sugar production in their countries, Caribbean sugar plantation and sugar mill workers begin to immigrate illegally to the United States to find work.	#7
Market: soybeans produced in the United States **News Event:** As higher sugar prices lead more U.S. farmers to grow sugar cane, sugar beets, and corn (for corn sweetener), the production of wheat and soybeans decreases.	#8
Market: U.S. farm land **News Event:** Higher crop prices and profits drive up rents on U.S. farm land.	#9

LESSON SIX
PRICE CONTROLS: TOO LOW OR TOO HIGH

INTRODUCTION

Sometimes governments interfere with market forces by establishing minimum prices or maximum prices for specific goods and services. Examples of such legal price controls include minimum prices for milk and grain products to help agricultural producers; minimum wage laws in labor markets; and maximum prices for apartment rents, for gasoline in the 1970s, and for many products during World Wars I and II. Economists generally oppose these price controls, except perhaps during wartime conditions. Nevertheless, the policies continue to be an important influence on some key markets in the U.S. economy.

CONCEPTS

Markets and prices
Supply and demand
Shortages and surpluses
Rationing

CONTENT STANDARDS

Prices set by supply and demand are measures of the relative scarcity of products.

Shortages or surpluses usually result in price changes for products in a market economy.

When price controls are enforced, shortages and surpluses occur and create long-run allocation problems in the economy.

OBJECTIVES

◆ Define price ceilings and price floors.

◆ Analyze the effects of price controls on competitive markets.

◆ Describe the outcomes of price controls in terms of surpluses and shortages.

◆ Evaluate the arguments for and against price controls.

LESSON DESCRIPTION

Students use supply-and-demand graphs to illustrate the effects of legal price controls in competitive markets.

TIME REQUIRED

One class period.

MATERIALS

A transparency of Visual 1
★ One copy of Activities 1, 2, and 3 for each student

PROCEDURE

1. After covering basic material on how market prices are set by the forces of supply and demand (see Lessons 3-5), start a discussion of price controls by asking questions about a price that some students might think is "unfair." Examples might be the price of CDs, gasoline, and movie theater tickets, and some students might think the minimum wage is too low. Steer the discussion to the question: "Should the government do something about these prices that some of you think are unfair?"

2. Project Visual 1 to illustrate basic terms and concepts used in examining the effects of price controls.

3. Review the meaning and significance of the market clearing or equilibrium price of $50 and the equilibrium quantity of 120.

4. Explain that a price floor is a legally fixed price set above the market clearing price and that a price ceiling is a legally fixed price set below the market clearing price.

5. Distribute a copy of Activity 1 to each student, and ask the students to answer the questions in small groups or as an individual assignment. Discussion should include the following:

A. The market clearing price is $50 because this is the only price at which quantity supplied is equal to quantity demanded.

B. The equilibrium quantity demanded and quantity supplied is 120 units.

C. At a price of $30, quantity demanded is about 160 units and quantity supplied is about 70 units. Explain that this difference, the amount by which quantity demanded exceeds quantity supplied at a price below the market clearing price, is called a shortage.

D. At a price of $80, the quantity supplied is about 190 and the quantity demanded is about 70. Explain that this difference, the amount by which quantity supplied exceeds quantity demanded at a price above the marketing clearing price, is called a surplus.

6. Ask students to identify examples of actual price ceilings and floors. (The minimum wage and agricultural price supports are examples of price floors; rent controls, "usury" laws setting maximum interest rates on credit card loans, and price controls on gasoline in the 1970s are examples of price ceilings.)

7. Distribute a copy of Activity 2 to each student. Have students answer the questions, either in group discussions or as an individual assignment.

Correct answers:

1. The number of seats in the stadium is fixed, and will not increase or decrease in response to a change in ticket price. However, that constraint only occurs at 60,000 seats. The fixed supply of season tickets at 40,000 seats is purely an administrative decision. At many universities, administrators would increase the number of season tickets available as price increased, up to or at least nearer the stadium's total seating capacity.

2. 60,000 total tickets; 40,000 season tickets

3. 70,000

4. There is a shortage of tickets because quantity demanded is greater than quantity supplied at the current price.

Comments concerning the athletic director's options might include:

A. Some students might consider raising the price to the market clearing price the fairest and most efficient thing to do; but the university might be called greedy and lose good will in the community.

B. The first-come, first-served method may be considered unfair to those who live out of town or are unable to wait in line. (Note: In first-come, first-served distribution programs, it is important to limit the number of tickets each person can buy. Otherwise, the first people in line will buy all the tickets to resell at higher prices.)

C. A random drawing might be considered fair in the sense that everyone who wants a season ticket has an equal chance to buy one, but long-time ticket buyers and supporters of the university may think it is very unfair.

D. Eliminating single-game ticket sales would solve only a part of the problem and will upset those who can attend only one or two games.

E. Reducing student seating will be opposed by students, who will predictably ask, "Why is the university here in the first place?"

8. Distribute a copy of Activity 3, Part I, to each student. After reviewing the explanation of how price controls are used in the dairy industry, ask students to answer the questions on their activity sheets.

Answers:

1. A surplus, because the quantity supplied exceeds the quantity demanded at a price floor of $1.40, which is higher than the market-clearing price.

2. $1.00

3. Clearly, the incomes of dairy farmers would decline considerably, especially those with relatively high production costs. Many small dairy farmers would probably have to shift into other agricultural products or leave farming entirely. Consumers of milk and other dairy products would benefit from lower prices. The reduced costs of purchasing and storing surplus products and administering the price-support program would reduce government expenditures, and benefit taxpayers.

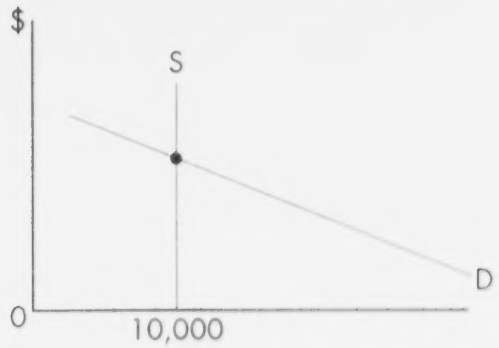
Explain that this part of the activity indicates why most economists tend to be critical of price support programs. Public policy debates do include discussions, and different interpretations of, these *economic* effects of price support programs. However, *political* concerns often dominate the debates and the policies. Tell students you will use Part II of Activity 3 to discuss these aspects of price support programs.

9. Distribute a copy of Activity 3, Part II, to each student. Ask students to read the statements of each speaker and to answer the question at the bottom of the page. Discuss Part II, noting the following points: These statements indicate a typically messy mix of economic and political issues. There is not a definite answer to the question of what would happen to the price of milk, but most economists believe that Miss Doright's comments are more accurate. Senator Foxfire's statement that milk prices might be even higher without price controls overlooks the effects of competition. Unless there are substantial barriers to entering the industry, competition can be expected to prevent monopolistic price levels—and there would probably still be a large number of milk producers without the price controls. Note that the effects of price-support programs are often to hurt a lot of people (in this case, milk consumers and taxpayers) a very small amount, and help a few people (in this case, milk producers) a great deal. Therefore, the comments of Senator Foxfire are often politically very persuasive. Special interest groups are willing to devote a lot of effort and money to their lobbying efforts because, for them, the stakes are high—they have a lot to gain or lose. Consumers and taxpayers who would gain from the lower milk prices aren't so clearly focused because, for them, the stakes are not so high—they have very little to gain or lose individually, even though in total they would often gain more than the special interest group would lose if the price controls were dropped. (See Lesson 14 for discussion and activities on special interest effects.)

ASSESSMENT

Tell students they must solve the following hypothetical problem:

"The greatest rock group of all time—think of a group even better than any group you have ever heard of—is going to get together for one final tour of three concerts. The first two concerts will be one night each in New York, Chicago, or Los Angeles (choose the two cities that are farthest from your area), and the third will be in your hometown. This group has been around for a while, and it has many fans in their 30s and 40s as well as younger fans. For acoustical reasons, the concert cannot be held in a stadium. It will be held in a portable auditorium, with exactly 10,000 seats." The demand for tickets to this final concert in your town can be shown as a downsloping line, as in the graph on the following page. (Draw this on the chalkboard or an overhead transparency, and also draw a vertical supply curve at 10,000 seats. Do *NOT* put numbers on the vertical axis.)



The students' first problem is to estimate what the market clearing price would be for this concert. Assume that there are no especially good seats or bad seats, so any ticket is as good as another. At what price do students believe the quantity demanded will be exactly 10,000?

(Allow class discussion of this problem—if students say that the market price would be $50 or $60, they probably don't understand the assumptions—tickets for some concerts performed by existing groups already cost this much or more. If students say that the box office price will be $50, but scalpers will probably charge $100, they don't understand the concept of a market clearing price. One way to describe a market clearing price is as the lowest price at which no scalping is possible. In other words, anyone who wants to buy a ticket at that price can do so. Some classes may agree on a price as low as $100 or so, and some classes may think it would be as high as $1,000—"The used ticket stub may be worth $100." "How many thousands of people from other cities will want tickets?" "These tickets would be worth more than ringside seats at a championship boxing match.")

After a few minutes, determine a reasonable price and announce: "All right, let's say that the market clearing price is $ _____. But hold it! We have just received a telegram from the group. They say they want to make this final concert in our town a special thank you to their fans. They will forgo any profits from this concert, and will even pay all necessary expenses. But they want to be absolutely sure that no ticket will be sold for more than $5. How will we do this?"

(Some students may suggest schemes such as selling a candy bar for $500 with a "free" concert ticket enclosed, but the band's statement is intended to rule out such approaches. Discussion is likely to center on two alternatives: first-come first-served, and some type of random drawings. In both cases, the number of tickets that can be purchased by one person is critical. The issue of reselling tickets, or scalping, is likely to generate considerable discussion. It might be suggested that reselling tickets should be made impossible by printing each purchaser's photo on the tickets and requiring a matching photo ID to enter the concert. Some students may argue that there is nothing wrong with scalping because it benefits both the buyer and the seller or it wouldn't take place. Those fortunate enough to get tickets, however they are distributed, shouldn't be prohibited from benefiting from the tickets either by using them or selling them.

Selling one ticket per person would greatly reduce the scalping problem, but attending concerts alone isn't much fun. Two tickets per person is probably a good compromise. Four tickets per person would allow a lot of scalping.

A first-come, first-served policy should raise questions about riots and sanitation problems at sales points for tickets, but is likely to have the support of a lot of students who may say "Somebody willing to lie in sleeping bags in the mud for three weeks deserves the tickets." Other students may argue that "rich" people may hire others to wait in line for them. These students may think that a random drawing would be more fair—people who want tickets could send in a check for $10 with social security numbers used to make sure that there is only one check per person. Then, 5,000 applications could be selected. Each of those people would get two tickets; everyone else gets his or her check back, less a handling fee.

Both alternatives have some unfair and inefficient results. The basic lesson about price controls is that when we don't let the market do its job, we face serious problems in trying to distribute goods and services in a fair and efficient way. Note that the makeup of the audience that attends the concert—younger vs. older, higher income vs. lower income, local residents vs. people from other cities—will depend on the specific rules imposed.)

ACTIVITY 1
PRICE FLOORS AND CEILINGS

Name _____

1. What is the market clearing price in the graph below?

2. What quantity is demanded and what quantity is supplied at the market clearing price?

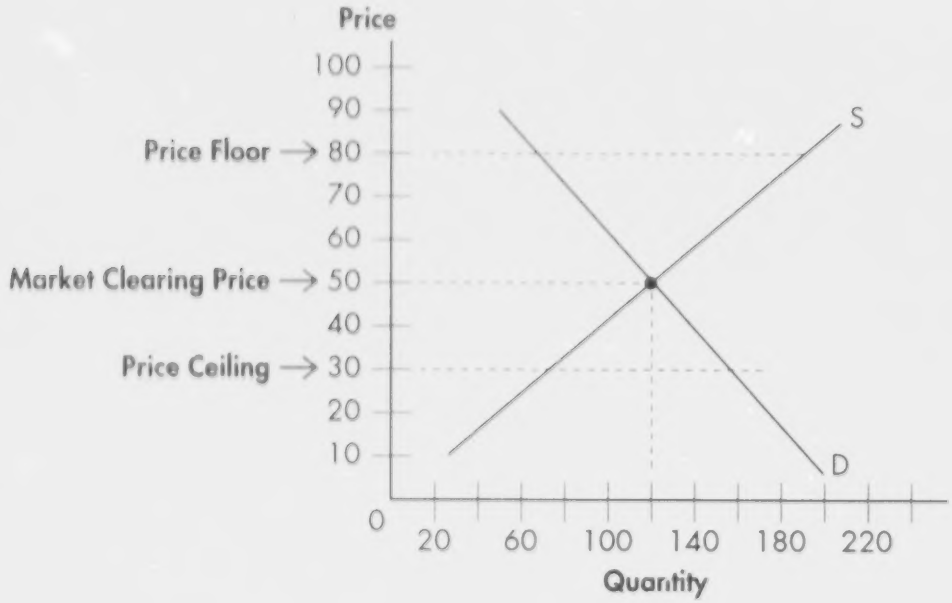
   Quantity demanded _____
   Quantity supplied _____

3. What quantity is demanded and what quantity is supplied if the government passes a law setting a maximum price of $30?

   Quantity demanded _____
   Quantity supplied _____

4. What quantity would be demanded and what quantity would be supplied if the government passes a law setting a minimum price of $80?

   Quantity demanded _____
   Quantity supplied _____



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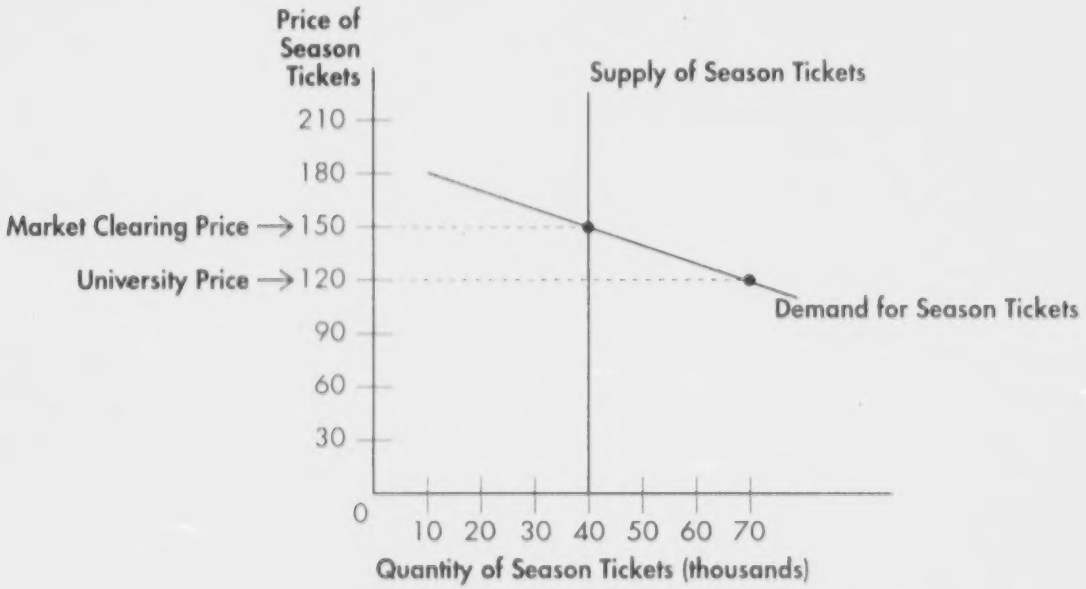
ACTIVITY 2
FOOTBALL FANATICS

Name _____

Big Football University has a stadium that seats 60,000 people. For each game, 15,000 seats are reserved for students, and 5,000 tickets are set aside to be sold during the week of the game on a first-come, first-served basis. The remaining 40,000 tickets are available to be sold as season tickets. The current price for a season ticket is $120. The athletic director has been studying the graph below, showing the supply and demand for season football tickets.



Questions:

1. Why is the supply curve a vertical line?

2. How many total tickets are available at the University's price?

3. How many season tickets do football fans wish to buy at the University's price?

4. What is the problem facing the University and these football fans?

ACTIVITY 2 (continued)

The athletic director has been considering several options. The president of the university and the president of the alumni association have urged him not to increase the price of season tickets because this is likely to create a great deal of ill will. The athletic director is considering the following five options:

A. Raise the price of season tickets to the market price.

B. Announce that season tickets go on sale at the ticket office the Monday following New Year's day each year, and that orders for the first 40,000 tickets will be filled on a first-come, first-served basis starting at 8:00 a.m. that morning. Any late orders will be filled as they come in, as long as tickets are still available.

C. Conduct random drawings of all requests for tickets until 40,000 season tickets have been distributed.

D. Eliminate single-game ticket sales.

E. Reduce the number of student seats and sell those tickets as season tickets.

Are any of these options fair? Who benefits and who loses under each option? What do you think the athletic director should do?

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ACTIVITY 3
MARKETS FOR MILK

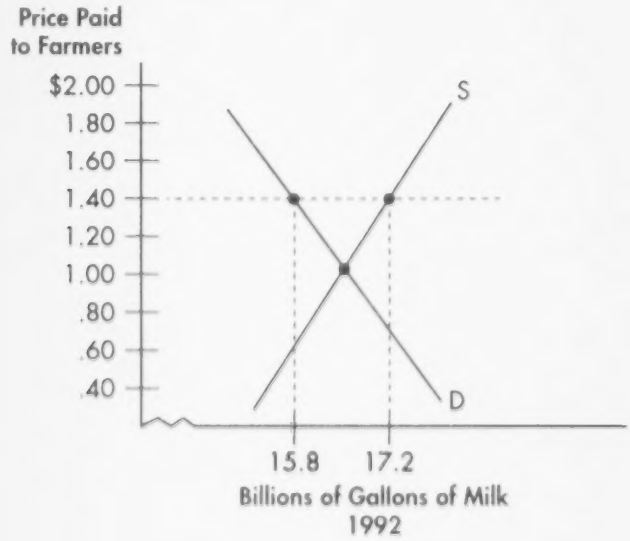
Name _____

Part I

Through a system of geographic "marketing orders," quotas, and price controls, the federal government establishes a minimum price paid to dairy farmers for milk. The effect of this system is to set the price at about $1.40 per gallon.

In 1992, dairy farmers produced and sold about 17.2 billion gallons of milk. About 6.5 billion gallons were sold to consumers (at an average price of about $2.40 per gallon). The remaining 10.7 billion gallons were sold to manufacturers and used in the production of butter, cheese, and dried milk.

Consumers purchased enough of these manufactured dairy products (butter, cheese, etc.) to account for about 9.3 billion gallons of milk. The federal government's Commodity Credit Corporation purchased the remaining products, or the equivalent of about 1.4 billion gallons of milk. The graph below presents this information using basic supply and demand curves for milk.



According to the information in this graph:

1. Is there a shortage or a surplus in the market? Explain.

2. If there were no government price controls in the market, this graph suggests that the price of milk (the market-clearing price) paid to farmers would be approximately _____ per gallon.

3. Who would benefit and who would be hurt if price controls in the milk market were eliminated?

ACTIVITY 3 (continued)

Part II

Imagine that you are a member of the U.S. House of Representatives. You must decide whether to vote yes or no on a bill that would eliminate the price-support program for milk. In committee hearings on the bill, you heard testimony from people who favor eliminating the program and from people who favor retaining it.

For example, you heard Diane Doright, who works at University Public Policy Institute, say:

> "This program is costly to consumers and taxpayers, and is an unnecessary and inefficient form of government interference in the economy. We estimate that, if the price support were ended, the price that milk processors pay for milk would decrease to about $1.00 per gallon and that the price paid by consumers would decrease from $2.40 per gallon to about $2.00. Prices of other dairy products, such as butter and cheese, would also decrease. Taxpayers would benefit by no longer having to pay to store millions of pounds of butter, cheese, and dried milk. And one of the worst effects of this program is that it keeps small, inefficient farms in operation. We shouldn't fear the forces of market competition."

You also heard Senator William Foxfire, from a Midwestern state with many dairy farmers and cheese factories, say:

> "People who want to eliminate this program just don't understand dairy farming. It is a very risky and unstable business. Feed costs may suddenly increase because of floods or droughts. Price supports bring some stability into this situation by making it possible for farmers to be sure of a certain price so they can ride out the rough times. And the so-called savings to consumers and taxpayers are an illusion. What would happen is that large, monopolistic dairy farms would take over the small family farms, and the price of milk might go even higher than it is now! As the displaced farmers moved into cities, taxpayers would be saddled with high costs of training and public assistance. Our small family farms represent the best American values of family, hard work, honesty, and thrift. We should not enact legislation that weakens these values."

Evaluate these statements and explain why you would vote for or against the bill.

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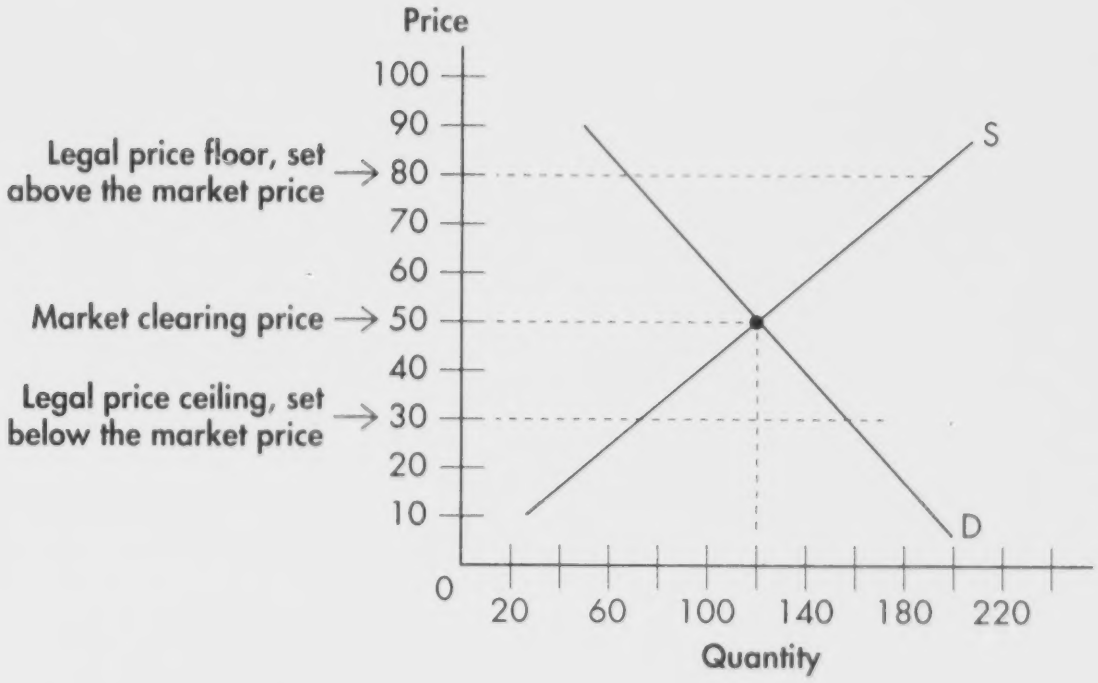
VISUAL 1
PRICE FLOORS AND CEILINGS



LESSON SEVEN
PRICE CHANGES MATTER

INTRODUCTION

The law of demand states that as the price of a product increases, the quantity demanded decreases. Conversely, as price decreases, the quantity demanded increases. But that still leaves an important question: Will consumers purchase a great deal more or less when the price decreases or increases, respectively, or only a little more or a little less? Price elasticity of demand is a measure of consumers' responsiveness to price changes. Understanding price elasticity of demand helps students see more fully how businesses make pricing decisions and what governments must consider as they make decisions about taxing a particular product.

CONCEPTS

Demand
Price elasticity of demand

CONTENT STANDARDS

Economists describe the demand schedules for various goods and services as inelastic if the quantity responses to a change in price are relatively small compared to the change in price. If the quantity responses are relatively large, demand is described as elastic.

Demand for products that have few close substitutes and that make up a small part of the consumer's budget tends to be inelastic. Demand for products with many close substitutes and those that represent a large part of consumers' total budgets tends to be elastic.

Demand is typically more elastic in the long run than in the short run.

OBJECTIVES

◆ Define price elasticity of demand.

◆ Distinguish between elastic and inelastic demand.

◆ Describe the factors that tend to make demand elastic or inelastic.

◆ Use the total revenue test to determine if demand is elastic or inelastic.

◆ Use price elasticity of demand to analyze several kinds of economic problems.

LESSON DESCRIPTION

In this lesson, students examine the characteristics of products to determine price elasticity of demand, calculate changes in total revenue to determine elasticity, and analyze the impact of elasticity on public policy and business issues.

TIME REQUIRED

Three class periods. Day one—procedures 1 and 2. Day two—procedures 3-6. Day three—procedure 7 and Assessment.

MATERIALS

★ One copy of Activity 1 for each student
■ One copy of Activities 2 and 3 for each student
Transparency of Visual 1

PROCEDURE

1. Distribute a copy of Activity 1 to each student and instruct students to read Part I. Discuss:

A. What does the law of demand state? (Price and quantity demanded are inversely related.)

B. What is price elasticity of demand? (A measure of consumers' price responsiveness. It compares how much quantity demanded changes relative to a change in price.)

C. What is elastic demand? (A situation in which quantity demanded changes relatively *more* than price changes.)

D. What is inelastic demand? (A situation in which quantity demanded changes relatively *less* than price.)

E. What factors tend to affect the price elasticity of demand for a product? (Whether the

★ all students–basic course material
■ average and above average students

product has many or few substitutes, whether the product takes a large or small portion of consumers' budgets, and how long consumers have to react to price changes.)

2. Instruct students to complete Part II of Activity 1. When students are finished, discuss the answers.

3. Distribute a copy of Activity 2 to each student. Tell students to read Part I. Discuss:

A. What is total revenue? (Price times quantity demanded.)

B. What is the price effect on total revenue when price increases? (To increase total revenue, because each unit is sold for more.)

C. What is the quantity effect on total revenue when price increases? (To decrease total revenue, because fewer units will be sold at a higher price.)

D. What happens to total revenue when price increases? (It may go up or down, depending on whether the price or quantity effect is larger. If the price effect is greater than the quantity effect, total revenue will increase. If the price effect is less than the quantity effect, total revenue will decrease.)

E. What is the price effect on total revenue when price decreases? (To decrease total revenue, because each unit is sold for less.)

F. What is the quantity effect on total revenue when price decreases? (To increase total revenue, because more units will be sold at a lower price.)

G. What happens to total revenue when price decreases? (It may go up or down, depending on whether the price or quantity effect is larger. If the price effect is greater than the quantity effect, total revenue will decrease. If the price effect is less than the quantity effect, total revenue will increase.)

H. How would you describe elastic demand in terms of the price and quantity effects? (With elastic demand, the price effect is smaller than the quantity effect, so price and total revenue move in opposite directions.)

I. How would you describe inelastic demand in terms of the price and quantity effects? (With inelastic demand, the price effect is larger than the quantity effect, so price and total revenue move in the same direction.)

J. What would happen to total revenue if the price effect and quantity effect were the same? (Total revenue would stay the same. This is called unitary elastic demand.)

4. Instruct students to complete Part II of Activity 2. When finished, discuss the answers to the problems.

(Procedures 5 and 6 are designed for use in strong classes making extensive use of graphical analysis.)

5. Display Visual 1 to provide an alternative explanation of how elasticity of demand and total revenue are related. Explain that the top graph shows the demand for product A. At a price of $2, 10,000 units would be demanded and total revenue would be $20,000. If the price rose to $4, the quantity demanded would decrease to 6,000 units and the total revenue would be $24,000. Price and total revenue both increased so demand is inelastic in this price range. Explain that the \\\\ area shows the price effect on total revenue and the //// area shows the quantity effect on total revenue. The price effect is larger than the quantity effect, so the price change has a stronger influence on total revenue.

6. Explain that the bottom graph shows the demand for product B. Like product A, 10,000 units will be demanded at a price of $2. If the price rose to $4, however, the quantity demanded would decrease to 4,000 units and total revenue would be $16,000. In this case, price and total revenue moved in opposite directions, so the demand is elastic in this price range. The dia-

gram shows that the quantity effect is larger than the price effect.

7. Distribute a copy of Activity 3 to each student and tell them to follow the instructions. When students are finished, discuss the answers to the handout. This presents a good opportunity to make the point that incorrect assumptions about elasticity of demand can lead to poor policy choices.

ASSESSMENT

Tell students to assume that your school receives 30% of its supplies budget from selling soft drinks. The school board is considering raising the price of soft drinks 20¢ to earn more revenue to buy computer software. Have students conduct a market survey among students in the high school to determine how many cans of soft drinks students are buying per week at the current price and how many they would buy each week at the higher price. From this data, have them determine whether the demand is elastic or inelastic in this price range, and write a recommendation for the school board based on their research.

ANSWERS TO ACTIVITIES

ACTIVITY 1

1. *Salt*—Inelastic. It has few substitutes and takes a small portion of consumers' budgets.
2. *New cars*—Elastic. Used cars are a widely available substitute, and a new car takes a large portion of consumers' budgets.
3. *Pork chops*—Elastic. There are many substitutes.
4. *European vacation trip*—Elastic. There are many other places for a vacation, and travel to Europe is a large expenditure item for most consumers.
5. *Insulin*—Inelastic. Few substitutes.
6. *Insulin at one of four drug stores in a shopping mall*—More elastic. Competition provides substitute goods.
7. *Gasoline purchases one day after a 20% price increase*—Inelastic. Consumers have not had enough time to adjust their purchases to higher gasoline prices.
8. *Gasoline purchases one year after a 20% price increase*—More elastic than in #7, but perhaps still somewhat inelastic. Many consumers will switch to more fuel-efficient cars or find other alternatives, such as carpooling, public transportation, and more frequent tune-ups of their cars.

ACTIVITY 2

2. A. $10 x 100 = $1,000; B. $9 x 110 = $990; C. P↓ TR↓ inelastic
3. A. $6 x 60 = $360; B. $9 x 50 = $450; C. P↑ TR↑ inelastic
4. A. $6.50 x 100 = $650; B. $6 x 200 = $1,200; C. P↓ TR↑ elastic
5. A. $4 x 300 = $1,200; B. $3.75 x 400 = $1,500; C. P↓ TR↑ elastic
6. Because the quantity effect is greater than the price effect.
7. Because the quantity effect is smaller than the price effect.

ACTIVITY 3

1. I.M. is wrong. He assumes that demand for these products is elastic, but it is not. He therefore falsely concludes that raising taxes on cigarettes and liquor will curb their consumption a great deal. Taxes on these commodities curb their consumption very little.
2. U.R. is wrong. There are many ways to save gasoline, including using small cars, carpooling, and using public transportation. When gasoline prices rose sharply in the 1970s, gasoline consumption in some states fell by as much as seven percent a year, for several years in a row.
3. Vic Acqua's assumption is wrong. Demand for water is inelastic, but raising its price will curb consumption some, as people cut back on uses that are less important to them—e.g., watering lawns and washing sidewalks and driveways.
4. Sky's assumption is wrong. She assumes that both business travelers and vacationers have an elastic demand for air travel. The fact is that the business travelers' demand tends to be much less elastic because they often cannot postpone or give up their air travel, schedule it as far in advance, or stay over weekend periods as easily as vacationers. Vacationers can more easily postpone their air travel, use other means of transportation, or change their destination so as not to require air travel, or to require less of it.

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ACTIVITY 1
WHAT IS PRICE ELASTICITY OF DEMAND?

Name _____

Part I: Overview

According to the law of demand, quantity demanded decreases when price increases. When price decreases, quantity demanded increases. However, it's not enough to know in what direction quantity demanded changes in response to price changes. It is also important to know *how much* the quantity demanded changes. A business may decide not to increase the price of its product if consumers will buy *much less* of it at the higher price. But a business will certainly increase the price of its product if consumers will buy only a *little less* of it at the higher price.

The measure of how much quantity demanded changes relative to price changes is called **price elasticity of demand.** If the quantity demanded changes more than price, in percentage terms, demand is elastic. Elastic demand means the quantity demanded is very responsive to changes in price. If the quantity demanded changes relatively little, the good or service has an **inelastic** demand.

Several factors determine whether the demand for a product is elastic or inelastic in some price range.

Products that have many substitutes tend to have an elastic demand because it is easy to buy a substitute when its price rises. A product that has few substitutes tends to have an inelastic demand, because buyers don't have as much choice.

Goods and services that take a large portion of a consumer's budget tend to have an elastic demand because the price change has a bigger impact on the consumer's overall spending. Those that consume a small portion of a purchaser's budget tend to have an inelastic demand, because the impact of price changes for these products has a much smaller effect on the consumer's overall spending.

The more time consumers have to adjust to price changes, the more they will increase purchases in response to price decreases, and decrease purchases in response to price increases. Therefore, long-run demand tends to be more elastic than short-run demand.

Part II: Elastic or Inelastic?

Instructions: Determine whether the demand for the following items is price elastic or inelastic. Write your answer on the line after the item. Then write the reasons for your answer.

1. Salt _____

   Why? _____

   _____

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ACTIVITY 1 (continued)

2. New cars_____ Why? _____
_____

3. Pork chops_____ Why? _____
_____

4. European vacation_____ Why? _____
_____

5. Insulin_____ Why? _____
_____

6. Insulin at one of four drug stores in a shopping mall
_____ Why? _____
_____

7. Gasoline purchases one day after a 20% price increase
_____ Why? _____
_____

8. Gasoline purchases one year after a 20% price increase
_____ Why? _____
_____

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ACTIVITY 2
PRICE ELASTICITY AND THE TOTAL REVENUE TEST

Name _____

Part I: Overview

One way to determine price elasticity of demand is to examine what happens to total revenue when the price for a product changes. **Total revenue** is price times quantity demanded:

price	X	quantity demanded	=	total revenue
$10	X	150 items	=	$1,500

When the price for a good or service changes, the change in total revenue depends on the *relative* size of the changes in price and the quantity demanded. First there is a *price effect*—a change in the amount the seller receives for each unit sold.. The price effect of a price increase is to raise total revenue. The price effect of a decrease in price is to lower total revenue. However, there is also a *quantity effect*. Higher prices result in a decrease in quantity demanded, which means revenues are collected on fewer units. Therefore, the quantity effect of a price increase is to lower total revenue. On the other hand, when price decreases, quantity demanded increases, so revenues are collected on more units. That means the quantity effect of a price decrease is to increase total revenue.

The price effect and quantity effect work in opposite directions, so total revenue may go up or down whenever price changes. If the price effect is greater than the quantity effect, the demand will be inelastic. If the quantity effect is greater than the price effect, the demand will be elastic. By comparing the directions of the price and total revenue changes, you can determine whether the price effect or quantity effect is larger, and from that determine whether demand is elastic or inelastic.

Price	Total Revenue	Elasticity of Demand
↑	↓	elastic
↓	↑	elastic
↑	↑	inelastic
↓	↓	inelastic

Part II

To make sure you understand these points, complete the problems that follow, and circle the correct arrows in part C of each question. Then write whether the demand is elastic or inelastic in this range of prices. The first problem is completed for you.

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ACTIVITY 2 (continued)

1. *Price rises* from $5 to $6. Quantity demanded decreases from 15 to 10.

   A. Old price x old quantity demanded = old total revenue
   5 15 75

   B. New price x new quantity demanded = new total revenue
   6 10 60

   C. P ↓ (↑) TR (↓) ↑ elastic

2. *Price falls* from $10 to $9. Quantity demanded increases from 100 to 110.

   A. Old price x old quantity demanded = old total revenue
   _____ _____ _____

   B. New price x new quantity demanded = new total revenue
   _____ _____ _____

   C. P ↓ ↑ TR ↓ ↑ _____

3. Price rises from $6 to $9. Quantity demanded decreases from 60 to 50.

   A. Old price x old quantity demanded = old total revenue
   _____ _____ _____

   B. New price x new quantity demanded = new total revenue
   _____ _____ _____

   C. P ↓ ↑ TR ↓ ↑ _____

4. Price falls from $6.50 to $6.00. Quantity demanded increases from 100 to 200.

   A. Old price x old quantity demanded = old total revenue
   _____ _____ _____

   B. New price x new quantity demanded = new total revenue
   _____ _____ _____

   C. P ↓ ↑ TR ↓ ↑ _____

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ACTIVITY 2 (continued)

5. Price falls from $4.00 to $3.75. Quantity demanded increases from 300 to 400.

   A. Old price x old quantity demanded = old total revenue

   _____ _____ _____

   B. New price x new quantity demanded = new total revenue

   _____ _____ _____

   C. P ↓ ↑ TR ↓ ↑ _____

6. Why do price and total revenue go in opposite directions when the demand for the good is elastic?

   _____

   _____

7. Why do price and total revenue go in the same direction when the demand for the product is inelastic? _____

   _____

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ACTIVITY 3
APPLYING ELASTICITY TO THE REAL WORLD

Name _____

Instructions: Each of the following stories contains an assumption about elasticity of demand. For each story:

A. State whether the assumption made about the elasticity of demand is correct or wrong.

B. Justify your answer.

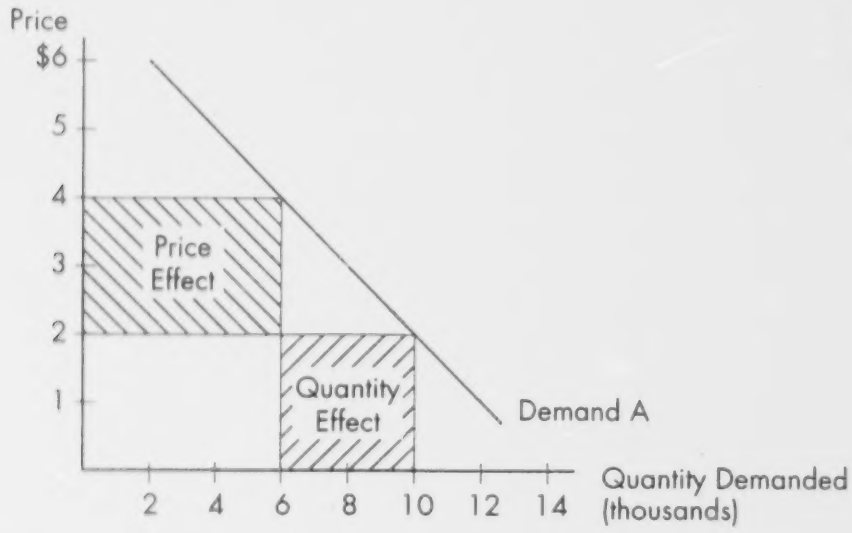
1. I. M. Politico, a candidate for the state legislature, is proposing a large increase in the tax on cigarettes and liquor. He says, "I'm not proposing these taxes to raise revenue, but to discourage reckless drinking and the filthy habit of smoking. If the prices of cigarettes and booze go up, most people will quit using them. After all, no one has to drink or smoke."

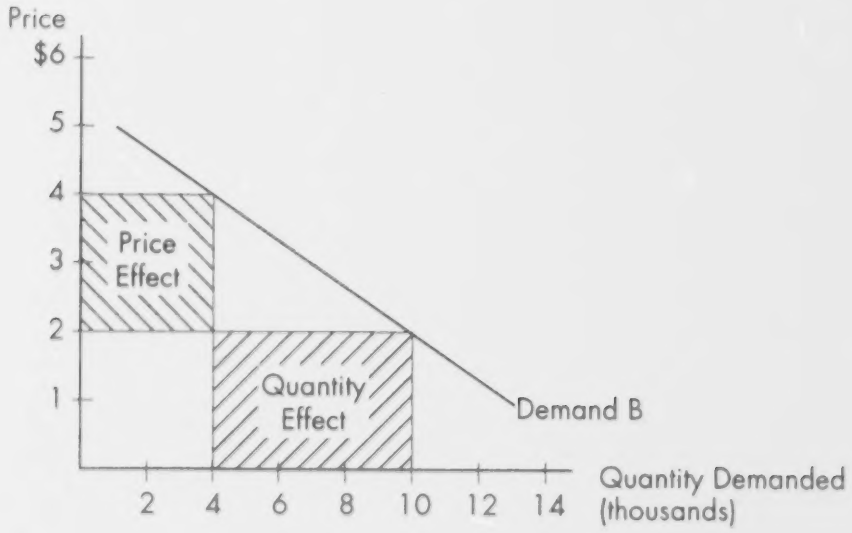
2. U. R. Kool, a candidate for Congress, proposes freezing the price of gasoline. "There is no substitute for gasoline," he says. "People have to get from one place to another. Economists who say higher prices will discourage people from buying as much gas as before don't live in the real world."

3. Councilman Vic Acqua opposed a price increase for water during a recent drought. He claimed that there is no substitute for water, and that therefore the demand for water is inelastic. He believes an increase in the price of water (with a water tax) will not cause the amount of water people use to go down at all.

4. Sky King, world traveler, says if the airlines want to attract more passengers, they should lower fares for business travelers as well as for vacationers. She believes both groups will respond equally to a price decrease.

VISUAL 1
COMPARING PRICE ELASTICITIES





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LESSON EIGHT
THE STOCK MARKET: RISKS AND REWARDS

INTRODUCTION

There are several reasons for including the stock market in a study of economics. First, the stock market is an important institution in the operation of the American economic system. Companies raise a large part of the funds used for investment through the various markets for securities. The markets for *new* issues of stocks and bonds, which are generally referred to as *primary* markets, are critical in this important process.

Second, the stock market plays a critical role in *personal* financial planning activities. Not only do many individuals directly purchase shares of stock as part of their personal financial strategies, the vast majority of Americans have a large stake in the stock market through their participation in public or private retirement programs. Investments in common stocks have proven to be an excellent long-run strategy in retirement planning, compared to alternatives such as savings accounts, government securities, corporate bonds, precious metals, works of art, rare coins and stamps, and even baseball cards.

Third, the stock market provides a dramatic example of virtually instantaneous price determination through the interaction of supply and demand forces in an auction-like environment. The stock market reflects many important characteristics of what economists call efficient and competitive markets.

Finally, people of all ages find the stock market to be an interesting subject for study and discussion. In both fact and fiction, fascinating stories of winning and losing vast fortunes on the stock market abound. Economics teachers can capitalize on the natural interest in this topic by integrating lessons dealing with the stock market into various parts of their courses. So start by teaching students how to read stock price reports and interpret financial information, then use the students' interest in the topic to demonstrate and help teach basic economics.

CONCEPTS

Economic institutions and incentives
Markets and prices

CONTENT STANDARDS

Several kinds of specialized institutions are found in market economies—the stock market is an example of such institutions.

Prices for corporate stocks are largely determined by people's beliefs about a company's future earnings, or profits.

Profit is the difference between revenues and the costs entailed in producing or selling a good or service; it is a return for risk taking.

The hope of earning profit motivates business firms to incur the risks involved in producing goods and services for the market.

OBJECTIVES

- Read and interpret stock market price reports.
- Describe the basic structure of the markets for corporate and government securities.
- Explain the distinction between primary and secondary markets for corporate securities.
- Define profits and explain the role of profits in the American economic system for both firms and individual investors.

LESSON DESCRIPTION

Activities 1 and 3 use information sheets to teach students about reading stock market prices and personal investing. Activity 2 explains the random walk hypothesis of efficient markets, and outlines a procedure for testing the hypothesis. Activity 4 provides historical data on profits in key U.S. industries and asks students to try to predict future profits for different kinds of products and firms.

TIME REQUIRED

Three class periods. Day one—procedure 1 and begin procedure 2. Day two—procedure 3 and begin procedure 4. Day three—complete procedures 2 and 4. In Activity 2, you may decide to have students track the prices of several stocks over a period of several weeks.

MATERIALS

★ One copy of Activity 1 for each student
■ One copy of Activity 2 for each student
★ One copy of Activities 3 and 4 for each student. Activity 2 will require at least one dart, a current list of stock prices, and a suitable backing for a "dartboard" (e.g., a bulletin board, cork tiles, or styrofoam panels).

PROCEDURE

1. Distribute a copy of Activity 1 to each student and discuss it with the class. The explanations are straightforward and generally easy to understand. The measure that is most useful in illustrating basic economic concepts is the price-earnings ratio, because stockholders are buying a claim to the companies' future profits. The price of a share of stock, just like the price of other things, is determined by the interaction of supply and demand factors—i.e., by buyers and sellers. It should be stressed that a stock with a low P-E ratio is not necessarily a "better" investment than one with a high ratio, because the stock price is based on expected *future* prices and earnings (see Appendices 1 and 2 for more information).

The correct answers to questions on the activity sheet are:

A. 963,800

B. 41 ⅞

C. Approximately $1.41 ($40.875 divided by 29)

2. Distribute copies of Activity 2 to all students. Have them read the sheet, and then select three stocks using a dart board or drawing. Have three students contact a broker or bring in "expert" picks from other sources. Track the stock prices for three to six weeks. Be prepared for a wide range of possible results: sometimes the expert opinions will beat the darts and sometimes the darts will win decisively. Explain that the real test is to beat the random choice methods for a large number of stock picks over periods of several months, or even years.

You might want to establish some additional ground rules for the activity. For example, you may want to restrict the choices to common stocks. If a dart hits any security other than a common stock, the rule could be that the nearest common stock has been selected or that the dart will be thrown again. Students throwing the darts might also be blindfolded, to emphasize the randomness of the selection process.

3. Distribute a copy of Activity 3 to each student and discuss the primary market for corporate securities with the class. Explain that in the primary market companies raise investment funds by issuing *new* securities. The distinction between this market and the secondary market, in which previously issued securities are traded every day, should be stressed. An important aspect of the secondary market is that, by maintaining an active market for previously issued securities, it makes the primary market possible. Without such a dynamic market, it would be much more difficult for new issues to be sold through the underwriting process.

Answers to the question on the activity sheet should include:

A. Newly issued shares are initially sold through a negotiation process involving investment bankers. In the secondary market, many buyers and sellers exchange previously issued stock shares and money, usually through stockbrokers.

B. In the primary market, the companies issuing the stock actually receive funds to be used in ways explained in the Prospectus. In the secondary market, the companies whose shares are being traded do not receive the funds; whoever sells the stocks receives the money.

C. Government regulations are important in

★ all students—basic course material
■ average and above average students

both markets, but they are much more strict and formalized in the primary markets.

The statement at the top of the announcement illustrates the role of government in protecting investors. Underwriters must, by law, provide potential investors with a copy of the Prospectus. This regulation was adopted as a result of widespread speculation and some unscrupulous dealings in corporate securities during the 1920s and 1930s.

Each state has a designated Securities Administrator (often in the Secretary of State's office) responsible for enforcing securities laws and protecting the public from fraudulent investment schemes. Regulators are especially concerned about new issues of very low-priced stocks, sometimes called "penny stocks," which are often characterized by a high degree of risk and relatively high commission charges.

The North American Securities Administrators Association and The Council of Better Business Bureaus jointly published a paperback book, *Investor Alert! How to Protect Your Money from Schemes, Scams, and Frauds* in 1988. Copies may be available from state and regional offices of these organizations.

You may want to invite financial advisers or stockbrokers to visit classes as guest speakers. Ask them to bring and explain a current Prospectus for some stock offering.

4. Distribute copies of Activity 4 to each student and discuss the role of profits in the American economy. (Two different measures of profit are explained in Appendix 2.) The profit data in Activity 4 were taken from an annual issue of *Fortune* magazine highlighting the "Fortune 500". The 500 largest U.S. industrial corporations are usually featured in the April issue of *Fortune* and the 500 largest service corporations in the May issue.

Suggested answers to the questions on the Activity Sheet are given below, but students may think of other plausible explanations:

A1. Consistently high profits in this industry are largely due to strong product demand and the patents provided to developers of new products. Patented products are protected from direct competition for a number of years, so that companies and investors have strong financial incentives to develop more new products.

Another possible explanation is that firms in this market are relatively large with high research and development costs. That creates serious barriers to entry into the industry, so the market may not be very competitive. Students may also point out that the demand for drugs tends to be price inelastic ("people will pay any price to get a drug that will be helpful"). This is not, however, a complete answer, because it doesn't explain why other firms would not come into this industry and drive profits rates down.

A2. A major reason for high profits in the tobacco industry is government-imposed supply restrictions, through a system of price controls and production quotas for growers. There are also significant barriers to entry into the industry because of strong brand loyalty—advertising and other expensive marketing strategies make the industry a difficult one for new competitors to enter. Increasing foreign demand for American tobacco products has offset decreasing demand in the United States; and the demand for tobacco is also price inelastic. But once again, demand conditions are not a complete answer. Strong demand contributes to high industry sales levels, but government supply restrictions and barriers to entering the industry are the major reasons for persistently high profit levels.

A3. Profits in the textile industry have been below the long-term average for the industry and below the average for all Fortune 500 firms for quite a few years. As expected, resources have left the industry. Vigorous foreign competition has been a major factor.

A4. Natural monopolies, such as public utilities, are regulated by government agen-

cies. Since direct competition with other firms producing the same product is not feasible, prices and/or profit levels are set by government. Government agencies are generally required to set rates to provide a "fair rate of return" to stockholders. Therefore, profit rates tend to be relatively stable. These firms also usually face fairly steady demand and cost conditions, except in areas with big population changes, or in times when fuel prices are changing rapidly.

A5. The automobile industry is an example of what is sometimes referred to as "heavy industry," characterized by extremely high capital investments. It also faces strong foreign competition and changing consumer tastes for different models and types of vehicles (e.g., 4x4s, minivans, and convertibles). The result has been extremely volatile swings in profitability. From enormous losses in 1992, the industry rebounded with a profit rate slightly above the Fortune 500 average in 1993.

A6. The overall performance of *Fortune* 500 companies reflects economic activity in the entire economy. During the high growth years of 1988 and 1989, average profit levels for these firms were substantially higher than their historical average. The recession year of 1992 resulted in much lower profits.

B. Students should be encouraged to think creatively about the future of the American and world economies. There will obviously be extremely important changes occurring, but the nature and extent of these changes are unknown.

It should be noted that even if an industry grows during the next 15 years, that does not necessarily mean that it will be more profitable, because competition may keep profits close to normal levels. Also, even in an expanding industry, some firms may be highly profitable while others are big losers. Profit levels for the computer industry in Activity 4 are a good example of this.

Some ideas that students might consider include:

1. American firms will almost certainly be more involved in international trade. This is likely to result in the growth of firms that produce products for export, and also in industries concerned with marketing and transporting both exports and imports.

2. Technological changes will lead to the expansion of *some* firms dealing in communications, space exploration, oceanography, health care, and many other areas that we cannot pinpoint today.

3. An aging population will probably result in increased sales in industries dealing with health care and other services important to older consumers, and relative declines in youth-oriented businesses.

4. Industries that produce military hardware and other defense products may be much more or much less important. Forecasts involve a number of assumptions relating to global political and economic issues.

C. Common stock prices tend to rise for firms experiencing strong growth in profits, and fall for companies experiencing losses, because the stockholders own a share of those profits and losses. Point out, however, that today's stock prices are largely determined by the market's assessment of future earnings (or losses), not current earnings.

ACTIVITY 1
HOW TO READ STOCK MARKET REPORTS

Name _____

Many newspapers publish daily reports of stock market transactions. The prices listed below were taken from the April 21, 1994 *Wall Street Journal*. Many newspapers do not list this much information.

52 Weeks Hi	52 Weeks Lo	Stock	Sym	Div	Yld %	PE	Vol (100s)	Hi	Lo	Close	Net Chg
44 ½	24 ¼	Ashland Oil	ASH	1.00	2.4	15	3226	42 ⅜	41 ⅞	42	- ⅛
73 ⅛	50 ⅜	Ashland Oil pf		3.13	4.6	—	209	69 ¼	68 ¼	68 ¼	- ⅞
65	49 ½	AmT&T	T	1.32	2.5	17	32037	52 ⅛	51 ⅛	52 ⅛	+ 1 ½
48 ⅝	36	Disney	DIS	.30	.7	29	11401	42 ⅜	40 ½	40 ⅞	- ¾
60	40 ⅝	IBM	IBM	1.00	1.9	—	22077	53 ¾	51 ½	52 ¼	- 1⅛
42 ⅞	32 ⅜	ToysRUs	TOY	—	—	20	9638	33	32 ⅜	33	+ ¼

The stocks listed are common stocks unless indicated otherwise. For example "**pf**" indicates a preferred stock. The numbers to the left of the name of the corporation show the highest and lowest price at which the stock has traded during the previous 52 weeks. The **symbol** column lists the stock's ticker symbol. These symbols are used by brokers when stock is being traded. The **dividend** column shows the current level of dividends that will be paid over one year to the owner of one share of stock. Some companies pay very little or no dividends. ToysRUs, for example, is paying no dividends, and DISNEY is paying only 30 cents. The next column, **dividend yield**, shows the dividend as a percentage of the stock closing price.

The **PE** column lists the price/earnings ratio, which is the price of a share of stock divided by the company's earnings (profits) per share for the last 12-month period. This is a useful measure for studying the market's evaluation of a particular stock. A high p/e ratio indicates that the market has bid the price of the stock up to a relatively high level with respect to its current earnings. A stock that the market has evaluated as a stable, relatively secure investment will often have a relatively low p/e ratio. Owning stock in a company gives stockholders a claim to part of the firm's future profits, so clearly the price of the stock compared to current profits per share is an important ratio for investors to consider.

The column marked **volume** lists the number of shares sold (in hundreds) on April 20, 1994. There were 322,600 shares of ASHLAND OIL traded and 2,207,700 shares of IBM. The **hi, lo,** and **close** columns show the range of prices at which the stock traded during the day of April 20. For example, the highest price paid for DISNEY common stock was $42.375, and the lowest price was $40.50. The **closing price** is the price for the last transaction of the day. The **net change** column shows the change between this closing price and the closing price of the previous trading day. Note that the price of AmT&T common stock closed $1.50 higher than the closing price of April 19, so the closing price on April 19 was $50.625.

Many listings of stocks have lowercase letters to indicate special circumstances, which are explained in footnotes near the price report.

ACTIVITY 1 (continued)

Use the information above to answer these questions:

A. How many shares of Toys R Us were traded on April 20, 1994? _____

B. What was the closing price on April 19, 1994 for Disney common stock? _____

C. Disney's earnings (profits) per share for the past 12 months were approximately: _____

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ACTIVITY 2
A RANDOM WALK DOWN WALL STREET

Name _____

"If you want to really strike it rich in the stock market, you should tape a list of stocks on the wall, throw darts at the list, and buy the stocks your darts hit."

Could this be true? Is it possible that choosing stocks at random could be just as effective as getting advice from financial experts and stockbrokers? If your objective is simply to get rich buying stocks, the answer is quite possibly yes. But that's not because the experts don't know what they're doing, it's because of the special nature of the stock market itself.

The stock market is one of the most competitive markets in the world. Millions of people are trying to identify the best stocks to buy every day, using sophisticated forecasting techniques. Public information about stocks is widely available to anyone who wants it, at a very low cost. Therefore, almost everything that can be known about a stock is known by large numbers of buyers and sellers, and reflected in the market price of the stock. No one has an advantage over anyone else—unless they trade using private, "inside information," which is illegal.

Economists use the term "random walk" to describe purchasing decisions in markets with these characteristics. "Expert" forecasting in such markets isn't effective, because everything known about past performance is already reflected in the stock price, and future prices will only be affected by unknown, future events. In fact, even future events that are systematically predictable from past trends are reflected in the stock price, so only unexpected events will affect the future stock price.

If stock A and stock B are each selling for $20 per share, that is what the buyers and sellers in the market think the stock is worth. If there is unexpected good news about stock A and unexpected bad news about stock B, the price of stock A might rise to $30 while the price of stock B drops to $10. But which stock is the better buy then? Neither! After the prices change to reflect the new information, they will again both be selling for what the market thinks they are worth. Future changes in these prices will be the result of factors that are now unknown and unexpected.

The prices of most stocks rise over time, primarily because most companies reinvest a large part of their profits into their business, and when those investments succeed there are higher future profits for the stockholders to share. But the prices of individual stocks and "indexes" of prices for many different stocks tend to vary randomly around this long-term trend. A great deal of statistical research and a lot of practical experience by millions of people have generally shown this random-walk theory to be accurate. If you can find a way to show it is not true, allowing you to outpredict random choices of stocks, you can become very rich indeed.

ACTIVITY 2 (continued)

To see what is involved in doing that, you can run a simple test of the random walk concept by selecting three stocks based on expert opinion and choosing three other stocks randomly. For expert picks, you might want to ask a stockbroker or check newspaper articles and weekly financial programs on PBS that recommend specific stocks. For random choices, you can use a dart board that lists all stocks on the major stock exchanges or cut up company names on slips of paper and draw three from a hat.

In the table below, list stocks selected on the basis of expert opinion as numbers 1, 2, and 3, and those selected randomly as numbers 4, 5, and 6. Then follow the stock prices and any dividend payments for several weeks, and calculate the return from investing $10,000 in each of the six stocks.

Stock (Company)	Date Selected	Price	Subsequent Dates, Prices, and Dividend Payments
1			
2			
3			
4			
5			
6			

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ACTIVITY 3
INVESTMENT BANKING AND THE STOCK MARKET

Name _____

The announcement below is for a new issue of common stock in the First Alert corporation. The 49 other firms listed are investment bankers, which means they specialize in buying and selling new issues of stock. Investment bankers buy the new stock from the company which issues it (in this case, First Alert) at a negotiated price. The investment bankers accept the risk that they can resell these securities to the general public at a profit.

These 49 firms have formed an "underwriting syndicate" to buy First Alert, Inc.'s new issue of 3,600,000 shares of its common stock. The two firms listed at the top in slightly larger print are the lead firms in the syndicate. These two firms probably did most of the research and negotiating that led to this agreement, and they probably have a larger share of the issue. For example, each of these two firms might be responsible for buying 10%-15% of the total issue while the other 47 firms might have subscribed to as little as one-half of one per cent up to 2% or 3%. Note that the investment firms hope to sell these shares for $61.2 million (3.6 million x $17). Since they expect to make a profit, the syndicate clearly paid First Alert less than this. For example, suppose First Alert received $56 million from the syndicate. That means the syndicate will earn a little over $5 million *if* the firms are successful in selling this issue fairly quickly at the expected price of $17 per share. First Alert has already received its investment funds, and knows that its new shares of common stock will be introduced into the market in an orderly fashion involving many brokerage firms.

First Alert can use the funds it receives to undertake projects specified in the Prospectus. A Prospectus includes a detailed description of the company's recent business history, with key data on the company's current operations, and an explanation of how proceeds from the new stock issue will be used.

The Securities and Exchange Commission requires that all purchasers of newly issued stock be provided with a copy of the Prospectus—see the note at the top of the announcement.

What are the main differences between the primary market for new securities, and the secondary market for previously issued securities?

_____

_____

_____

_____

_____

April 5, 1994

3,600,000 Shares

First Alert, Inc.

Common Stock

Price $17 per Share

Smith Barney Shearson Inc. | Morgan Stanley & Co. Incorporated

Alex. Brown & Sons Incorporated | A.G. Edwards & Sons, Inc. | Lehman Brothers | Paine Webber Incorporated | Salomon Brothers Inc | The Chicago Dearborn Company | Kemper Securities, Inc. | The Robinson-Humphrey Company, Inc. | Robert W. Baird & Co. Incorporated | First Albany Corporation | Janney Montgomery Scott Inc. | Tucker Anthony Incorporated | Eppler, Guerin & Turner, Inc. | C.L. King & Associates, Inc. | Pennsylvania Merchant Group Ltd. | Van Kasper & Company

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ACTIVITY 4
PROFITS AND PROPHETS

Name _____

The American economic system is described by many different names: the market system,' capitalism, the free enterprise system, or a profit system. The last name indicates clearly that profits (and losses) play a crucial role in the operation of the U.S. economy.

The best general measure of profits compares what companies make to what they risked to earn those profits. The table below lists rates of profits as a percentage of stockholders' equity—what the company owners were risking in the firm—for several industries during a recent 10-year period. As you can see, rates of profit vary considerably by industry from year to year, although the median rate of profit for the 500 largest industrial firms was generally between 10% and 15%. (This median rate of profit is the "middle" rate of profits for firms in the industry—half of the firms have profits above this rate, half of the firms have lower profits.)

Examine these data, and answer the following questions on the following page:

Profits at Fortune 500 Firms
(as a Percentage of Stockholders' Equity)

Industry	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984
Banks	na*	13.0	11.9	9.9	13.6	14.6	11.1	12.8	13.0	12.6
Motor Vehicles	10.5	-11.1	0.7	7.2	6.9	14.5	11.6	10.1	13.7	15.4
Food	12.7	15.6	19.7	16.5	14.7	15.7	16.1	15.8	15.0	16.2
Pharmaceuticals	22.0	26.7	26.1	26.4	25.5	23.6	22.7	23.6	15.6	18.1
Textiles	10.6	9.8	4.6	2.9	7.7	10.8	12.8	8.1	5.6	8.2
Computers	9.5	4.6	10.2	12.0	12.7	14.7	14.6	10.8	11.0	12.6
Tobacco	16.5	21.9	12.1	14.8	20.1	22.5	23.1	22.1	22.8	23.8
Utilities	na*	10.6	11.5	11.5	12.4	12.7	12.8	13.3	13.0	13.4
Median Profit % for all industries	10.3	9.1	10.2	13.0	15.0	16.2	13.2	11.6	11.6	13.6

* not available

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ACTIVITY 4 (continued)

A. During this period why do you think profits were:

1. Relatively high in the pharmaceutical industry?
2. Relatively high in the tobacco industry?
3. Relatively low in the textile industry?
4. Relatively stable in the utilities industry?
5. Extremely variable in the motor vehicle industry?
6. Relatively low for all 500 firms in 1992?

B. Forecasting profits and business levels for individual firms and industries is a challenging task for stock market analysts, but even amateurs can make predictions. Look into your crystal ball and make a long-term (15- to 20-year) forecast. List four industries that you believe will be a *larger* part of the American economy than they are today, and four industries that you believe will be a *smaller* part than they are today. Briefly explain each of your predictions.

LARGER PART	SMALLER PART
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____

C. What happens to the prices of common stock for companies that experience rapid growth in profits over several years? And to those that experience large losses?

APPENDIX 1
PERSONAL FINANCIAL PLANNING AND THE STOCK MARKET

Personal financial advisors generally recommend that individuals can best meet their objectives with a variety of types of investments which may range from government-insured savings accounts to highly speculative real estate purchases.

For most investors, various types of government and corporate securities are likely to be a major part of their personal investment portfolio. The two major types of securities are stocks and bonds. Corporations issue stock. Bonds are issued both by various levels of government and by private corporations.

The best known type of corporate security is common stock. Common stockholders have a vote in the selection of the Board of Directors and they share in the profits of the company. For example, if a company earns $2 million of profit in a particular year, the Board of Directors may decide to set aside $1 million to distribute to common stockholders as dividends. The remainder of the company's profits may be used for expansion of the business. If the company has one million shares of common stock outstanding, each stockholder would receive $1 in dividends for each share of stock he or she owns. If the business should fail or be dissolved, the holders of the common stock would receive their share of whatever was left over after the company paid all of its debts. If nothing is left over, they would receive nothing.

Some corporations also issue preferred stock. Preferred stockholders generally receive a fixed dividend, often higher than dividends paid on the company's common stock. Common stockholders are not paid any dividends until the preferred stockholders are paid. Preferred stockholders frequently do not have the right to vote for the Board of Directors, but they do rank ahead of common stockholders in the distribution of assets if the company is liquidated. In those cases, after all of the company's debts have been paid, the preferred stockholders receive their share of whatever is left before the common stockholders receive anything.

A bond, unlike a stock, represents debt. It is a contractual promise to repay a specific amount of money, plus a stated amount of interest. These interest payments are quite different from dividend payments because there is a legal obligation to pay the interest on bonds, just like any other bill. Bondholders are entitled to receive only the exact amount of money due, as stated on the bond. If the company fails, bondholders must be paid before any stockholders.

Investors select specific stocks and bonds for different reasons, but all securities can be evaluated with respect to three factors:

A. Income—A large share of corporate profits are distributed as dividends, but some companies pay higher dividends than others. Similarly, some bonds pay higher rates of interest than others. These dividend and interest payments provide income to stockholders and bondholders.

B. Potential for Price Increase—Many people buy particular stocks because they think that the price of the stock will go up in the future. This increase in value is called capital appreciation. Stock prices may go up for a number of reasons. The company's earnings may have increased, or people may simply think that they will go up in the future. Whatever the reason, many people buy stocks because they hope that the price of the stock will go up.

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APPENDIX 1 (continued)

C. Risk of Loss—The price of any security may go down, and companies do go bankrupt. Therefore, investors can lose money investing in stocks and bonds.

There is no one strategy for investing in stocks and bonds that is appropriate for all investors. The best strategy depends upon each person's circumstances and objectives, and the kind of security that fits those circumstances. For example, a government bond has virtually no risk of losing the amount invested, and provides relatively low, but certain, income. The common stock of a firm that operates gold mines is likely to pay little or no dividends, but may experience high rates of capital appreciation in the future. Of course, it may also decline greatly in value. The stocks of many public utilities, such as telephone and electric companies, pay fairly high dividends, and usually do not increase or decrease greatly in price.

An elderly retired couple may feel that the majority of its investment funds should be in high income securities such as government bonds and public utility stocks. Married couples in their mid-thirties with small children are more likely to be interested in securities that offer the chance for long-term capital appreciation, even if dividend payments are relatively low.

Selecting the best portfolio of particular securities is difficult for any investor, but it is clear that a person's investment objectives will determine the general types of securities which are most appropriate. Investment counselors and stockbrokers can provide a great deal of useful information in making investment decisions to match those objectives, and in diversifying investments to reduce risks.

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APPENDIX 2
TEACHING ABOUT PROFITS

Profits can be defined as income remaining after all costs of operating a business are paid. But the meaning of the term "all costs" must be made quite clear. Economists consider some level of profit as a necessary payment to entrepreneurs for incurring risks. Therefore, it is useful to consider two kinds of profit. Normal profit is the level of profit just sufficient to keep current resources in the market. When only normal profits are earned, firms will not leave the industry to seek higher profits elsewhere, nor will new firms be attracted to the industry. In other words, normal profits are equal to what entrepreneurs would expect to earn in other activities with similar risks.

Economic profit (sometimes called excess profit) is any profit greater than normal profit. Economic profit *will* attract additional resources into an industry, and losses and profits lower than normal profit levels *will* drive resources out of an industry.

In this way, profits serve as the basic signals that the market system sends to owners of scarce resources. Competition is expected to hold profits to normal profit levels in the long run. But in the short run, profits and losses direct scarce resources to their most valued uses.

Profit is best measured as a "rate of profit," or percentage, found by dividing the dollar amount of profits by the amount stockholders have invested in the company. The amount the owners are risking in the business is called stockholders' equity. Profits as a return on stockholders' equity can be used to compare the profit level for any sized firm in any industry.

Sometimes profits are expressed as a percentage of a firm's sales, but this is not a good general measure of profit. Profit as a percent of sales varies widely according to the type of industry and sales, and simply cannot be applied to some industries, such as banking.

Exactly what is the "normal" amount of profit? This is a difficult question because there are different levels of risk in different industries, and normal profits must be higher in riskier industries to offset years when losses are incurred. But we can get a fairly good idea of what a normal profit level is by looking at recent profit levels of various industries. For example, each year *Fortune* magazine publishes financial information on the 500 largest industrial firms. The median or "middle" rate of profit for these 500 firms is shown in Activity 4. Over recent decades, median profit levels for these firms and for all U.S. corporations have typically been in the 12-15 percent range. (Profits tend to be near the high end of this range in years when inflation is high, and toward the low end of the range when inflation in low.)

Profits are sometimes affected by a change in accounting practices, or by unusually good or bad years in terms of sales. Therefore, it is important to examine profits over a period of several years to establish typical patterns for a firm or industry.

"Real world" profit measures can be found in the annual reports of major corporations. For manufacturing and retail firms, the distinction between profits as percentages of stockholders' equity and sales is usually shown clearly. Financial institutions usually report profit as a percentage of some measure of assets or deposits.

Bring several annual reports to your class to provide information for discussion of these concepts. Some local companies, especially banks, make their annual reports available to anyone. Nationally known companies that usually provide a free copy of their annual reports to anyone who asks for it are identified in the *Wall Street Journal* in the daily listing of stock prices. These annual reports can be obtained quickly by using toll-free telephone (1-800-654-2582) or Fax (1-800-965-5679) numbers.

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LESSON NINE
GETTING MORE OR USING LESS

INTRODUCTION

Although the problem of scarcity can never be eliminated, it can be alleviated by finding ways to increase productivity. Productivity is the amount of goods and services produced (output) per unit of productive resources used (input).

Productivity can be increased by producing more goods and services with the same amount of resources, or by producing the same amount of goods and services with fewer resources. As productivity increases, production costs for each unit of a good or service decrease. That makes producers more competitive in the marketplace, and translates into higher wages for workers as productivity increases at the national level. In individual markets, however, productivity increases can sometimes reduce the number of workers employed.

Over time, both personal and national living standards are directly related to labor productivity. For a country to consume at high levels, it must have a highly productive labor force. Productivity can be increased by investing in capital goods such as factories, machines, and tools. Individual workers can also increase productivity and enhance their own earning power by investing in their human capital through education and training.

CONCEPTS

Productivity
Specialization and division of labor
Investment in capital goods
Human capital

CONTENT STANDARDS

Specialization and division of labor usually increase labor productivity.

Labor productivity can be increased by providing labor with additional capital goods.

Although investments in capital goods and in human capital can increase productivity, such investments have significant opportunity costs and economic risks.

Investment in human capital occurs when resources are devoted to increasing the quality of labor resources, thus enhancing productivity.

Living standards are directly related to labor productivity.

OBJECTIVES

- Define labor productivity as output per worker.
- Explain how the division of labor and investment in capital goods improves productivity.
- Explain why increased productivity is important to the economy and to individuals.

LESSON DESCRIPTION

Working in small groups, students participate in a production simulation to experience the effects of specialization, the division of labor, and investment in capital goods on labor productivity.

TIME REQUIRED

Two class periods. Day one—procedures 1-15. Day two—procedures 16-19 and Assessment.

MATERIALS

Large supply of 8 ½" by 11" paper
Large supply of paper clips and pens
Transparency of Activity 1
★ One copy of Activity 1 for each student
Transparency of Visual 1
★ One copy of Activity 2 for each student
Several pairs of gloves (any type), for optional procedure 14D

PROCEDURE

1. Divide the class into book companies consisting of four or five students per company. Let students name their companies.

2. Tell the students that they are going to produce books. Demonstrate how to construct a book, and have them make a practice book with you as you explain. Tear a piece of paper in half, put the halves together and tear the two halves in half

again, making four quarters. Put the four quarters together and fold them in the middle, making a 14-page book plus front and back covers. Place a paper clip in the upper left-hand corner to hold the book together. Write the name of the company on the cover, and number the even (left-hand) interior pages from 2 through 14, placing the page number in the bottom left corner. Explain that this is a completed book.

3. Tell students they will have three minutes to produce as many books as they can. Inform them you will serve as the quality control officer and inspect all finished books. You will reject all books that do not meet the standards. Only complete books that pass your inspection will count.

4. Distribute the paper, paper clips, and one pen to each company. Allow time for each student to make a practice book. Check to make sure all students understand what they are to do. Discard all practice books.

5. ROUND 1. Inform students that in Round 1, each worker in a company is a bookmaker. Each bookmaker produces the entire book alone. Bookmakers share materials and capital goods, but not labor.

6. Give the companies three minutes to produce books. Check each company's completed books and reject those that do not pass inspection. Discard all rejects and partially completed books.

7. Distribute Activity 1 to the companies. Have each company record its data. Using a transparency of Activity 1, fill in the data from one company so that all groups understand the categories for which they must record data.

8. *Discuss:* What is another way you could organize the production process? (Students usually suggest dividing the labor and specializing.)

9. ROUND 2. Once again limit each company to one pen, but allow students to introduce specialization and division of labor. Allow time for students to discuss breaking down the production of the book into a series of steps, and let each group member specialize in doing one or two specific steps. Point out that, as specialists, the students each do just a part of the production process.

10. Repeat step 6 and have companies record their data on Activity 1 under Round 2.

11. ROUND 3. If companies do not experience an increase in productivity between Rounds 1 and 2, repeat Round 2. This is often necessary because the specialists need practice in their specific assignments (investment in human capital), the assembly line needs to be reorganized, or the specialists fail to cooperate.

12. ROUND 4. Now allow companies to purchase as many additional pens as they wish. Each additional pen costs $.50. Point out that the pens are the companies' capital goods. When pens are purchased, give students time to analyze their production line and reorganize if they wish.

13. Repeat step 6 and have companies record their data on Activity 1 under Round 4.

14. OPTIONAL ROUND: Implement the situations described below in one or more book companies:

A. Allow companies to fire any workers they do not want to employ. Permit the fired workers to form new companies.

B. Inform companies that a new union contract states each worker must receive a one minute break during each production round. Every 60 seconds one specialist drops out of the production process.

C. Instruct one worker from each company to serve as a pollution monitor. Inform the companies that they still have the same number of workers, but the pollution monitor is no longer a specialist in the production process.

D. Inform companies that a new government regulation requires all workers to wear gloves due to the toxic nature of the paper used in the production process. Distribute a pair of gloves to each specialist.

15. Repeat step 6 and have companies record their data.

16. Using the information on the Activity 1 transparency, discuss the following points:

A. Explain that one definition of productivity is the ratio of the amount of output produced to the number of inputs used. How was your company's productivity ratio calculated on line 12? Point out that the ratio rises as productivity rises.

B. What happened to your productivity between Round 1 and Round 2? Between Round 2 and Round 3? Why did this occur? (In most cases productivity should increase between Rounds 1 and 2 due to specialization and division of labor. However, sometimes this does not happen due to lack of skills, lack of cooperation among the assembly line workers, or inexperience. By Round 3, companies should see an increase in productivity as specialists have more practice and as the companies refine the assembly line process.) What happened to quality between Rounds 2 and 4? (Typically, fewer books will be rejected and quality will improve.)

C. What effect did investing in additional capital goods (pens) in Round 4 have on productivity? (Capital investment should increase productivity.)

D. What effect did increased productivity have on average costs—line 10 of Activity 1? (It lowered average cost.) Why is this important? (Lower average costs means the producers can compete with other book companies more effectively, allowing them to stay in business and perhaps earn higher profits.)

E. What effect will increased productivity have on wages? (More productive workers will receive higher wages, because they add more to the firm's revenue while lowering its per unit production costs. Less productive workers may be fired and have to search for jobs where their skills are more valuable.)

F. What costs were incurred by attempts to increase productivity? (Buying additional capital goods—the extra pens—increased total costs, but lowered per unit production costs if productivity increased. Some workers may have been laid off.)

G. What are the advantages and disadvantages of specialization and division of labor? (Advantages: specialists become very skilled at doing one step of the production process, product quality improves, and productivity rises. Disadvantages: boredom, problems occur when specialists are absent, some workers may lose their old jobs, and have to look for a new employer.)

H. What other things could the book companies do to increase productivity? (Provide practice time or training for the specialists [investment in human capital] or invest in a paper cutter [investment in capital goods].)

I. What things should a company consider before investing in capital, such as a paper cutter? (It should weigh the cost of the paper cutter, the cost of training workers to use the paper cutter, and the risk involved in borrowing money to pay for the paper cutter, against the expected benefits of higher productivity.)

J. What is the opportunity cost of a company's decision to invest in capital? (What the company would have done with the money if it had not purchased the capital.)

17. Discussion for the Optional Round.

A. What effect did firing workers have on productivity? (If the fired workers were truly ineffective, this should have increased productivity.)

B. What effect did the required one minute rest period have on productivity? (Sometimes productivity will fall, but sometimes it will increase. Ask students why this might occur. Discuss the monoto-

ny of working on an assembly line and the possible gains short "coffee breaks" provide from the boredom of very repetitive work.)

C. What effect did the pollution monitor have on the production process? (Productivity should fall, and the average cost of the books increase.)

D. What happened to productivity when the workers wore gloves to protect their hands? (It should decrease.)

E. Relate activities C and D to current government policies and agencies such as EPA and OSHA. Note that there are presumably benefits from these programs, as well as the costs demonstrated here.

18. Why is it important to increase productivity? (It allows a country to produce more goods and services with its scarce resources. That allows a nation to improve the real standard of living of its people.)

19. Display Visual 1. Use the following questions for discussion.

A. Did productivity grow in the United States between 1977 and 1982 and between 1988 and 1991? (No.)

B. Ask students to consider what kinds of effects this lack of productivity growth might have had on the U.S. economy? (The price inflation for goods and services experienced between 1977 and 1982 was greater than it would otherwise have been, and the standard of living in the U.S. was essentially "flat" during these periods.)

C. What happened to productivity from 1983 to 1988? (Prior to 1983 the economy was in a recession, but an economic recovery began in December 1982. Productivity usually increases when the economy emerges from a recession, as was the case in early 1983. Businesses tend to have idle machinery and extra workers during a recession, so they can produce more output without adding machinery and labor when the recession ends.)

D. What happened to productivity from 1991 to 1992? (Output per hour increased rapidly from the end of 1990 to the end of 1992. The percentage of unemployed workers who permanently lost their last jobs rather than being temporarily laid off reached an all-time high of over 45 percent in October 1992. This job loss was due in part to long-term adjustments businesses had made to increase productivity and be more competitive in the global marketplace. The growth in productivity suggests that these policies were having that intended effect, at least to some degree.)

ASSESSMENT

1. Distribute Activity 2 to the class. Working in groups instruct students to read the headlines and answer the questions.

2. Have groups share their answers. Suggested answers:

HEADLINE 1: The Whirlpool factory could have reorganized its production process, invested in new technology and capital, or invested in training its workers. In fact, the Whirlpool plant located in Benton Harbor, Michigan worked with its employees to teach them new ways to improve quality. Later, it raised the pay of its workers.

HEADLINE 2: Increased productivity can result in higher wages for workers, allow U.S. businesses to remain competitive in international markets, and improve the nation's standard of living. One disadvantage can be the temporary loss of some jobs.

HEADLINE 3: Low productivity growth over a long period of time means that the standard of living is not rising, and that firms are probably less competitive with firms in nations experiencing faster productivity growth.

ACTIVITY 1
PRODUCTIVITY DATA

Name _____

Name of Book Company _____

	Sample	Round 1	Round 2	Round 3	Round 4	Round 5
1. Production method	Bookmakers					
2. Number of books produced	6					
3. Number of books accepted	4					
4. Cost of materials ($.25 per book)	$1.00					
5. Number of workers	4					
6. Wages ($1.00 per worker)	$4.00					
7. $2.00 rent for factory (desks)	$2.00					
8. Investment in capital goods ($.50 per pen)	$0.50					
9. Total costs	$7.50					
10. Cost per book (average cost): Total cost (Line 9) ÷ Accepted books produced (Line 3)	$7.50/4 =$1.88					
11. Total time worked: 3 minutes x number of workers (Line 5)	12 min.					
12. Output per minute worked: Number of books (Line 2) ÷ total time worked (Line 11)	4/12 = 0.333					

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ACTIVITY 2
NEWS HEADLINES—ASSESSMENT

Name _____

READ the headlines below and answer the questions.

HEADLINE 1: **WHIRLPOOL FACTORY INCREASES PRODUCTIVITY**

A. What are some steps the Whirlpool Factory could have taken to increase productivity?

B. How could this increase in productivity benefit the workers?

HEADLINE 2: **U.S. PRODUCTIVITY RISES RAPIDLY FOR 6TH CONSECUTIVE QUARTER**

A. How can rising productivity benefit workers? Producers? The nation?

B. Could there be some disadvantages of increasing productivity, at least to some people?

HEADLINE 3: **PRODUCTIVITY LAGS FIRST THREE QUARTERS OF 93**

A. Why is lagging productivity a problem for the nation, businesses, and individual workers and consumers?

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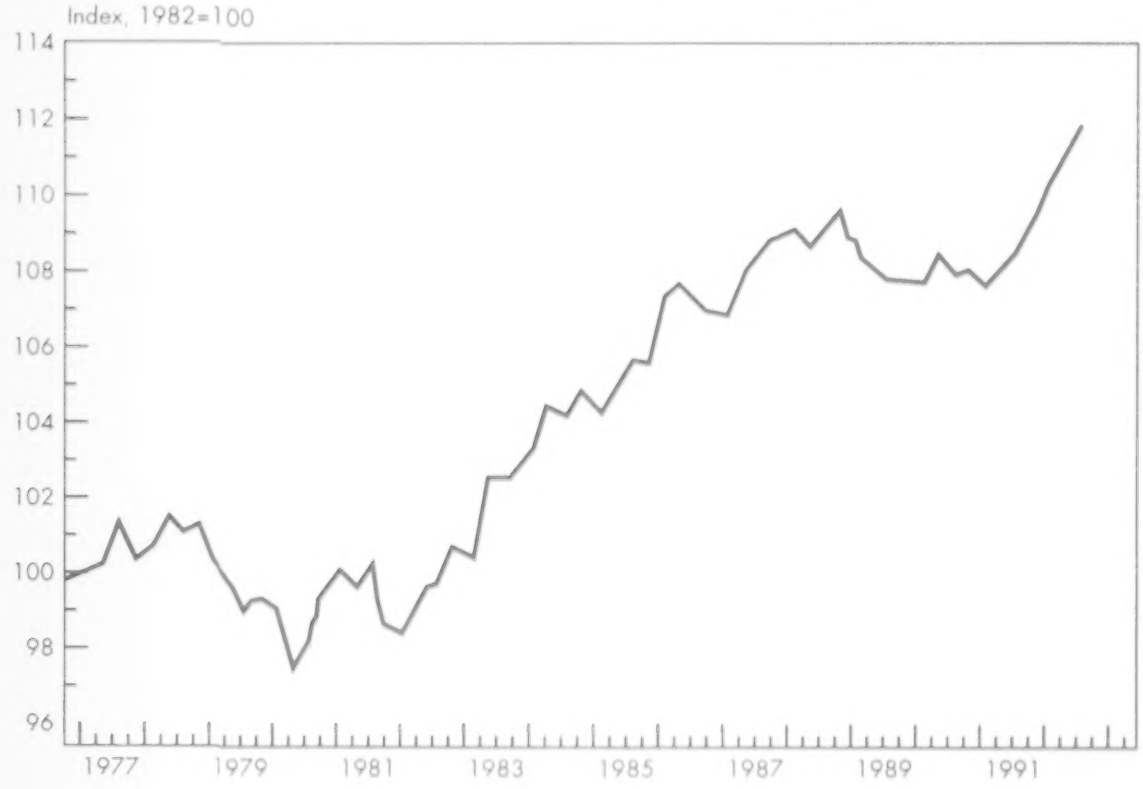
VISUAL 1
OUTPUT PER HOUR, NONFARM BUSINESS SECTOR



Source: *Economic Report of the President*, January 1993 (Washington, D.C., U.S. Government Printing Office, 1993)

LESSON TEN
LEARN MORE, EARN MORE

INTRODUCTION

Human capital refers to the knowledge, skills, and experience that people bring to the workplace. Through education and training, people can increase their human capital and improve their productivity.

Students must understand this connection and also recognize that more productive workers earn higher incomes. The choices they make today to improve their human capital can have a direct effect on their future standard of living.

CONCEPT

Human capital
Standard of living
Productivity

CONTENT STANDARDS

Investment in human capital occurs when resources are used to increase the quality of labor resources, thus enhancing their productivity.

Living standards are directly related to labor productivity.

OBJECTIVES

◆ Explain the relationship between investment in human capital (education and training) and income.

◆ Describe how making choices to improve knowledge and skills directly affects one's standard of living.

LESSON DESCRIPTION

Working in small groups, students analyze data and generalize about the relationship between the level of workers' education and their annual incomes. Students then randomly draw occupations and representative income levels, and establish a monthly budget to see in much greater detail the relationship between a person's education and standard of living.

TIME REQUIRED

Two class periods. Day one—procedures 1-7. Day two—procedures 8-12.

MATERIALS

Transparencies of Visuals 1 and 2
★ One copy of Activities 1 and 2, cut into pieces
★ One copy of Activities 3, 4, and 5 for each student
Five shoeboxes or large envelopes

PROCEDURE

1. Display Visual 1 and discuss:

   A. Why do some individuals earn more money than others? (The earning power of individuals with more education is, on average, greater than that of individuals with less education.)

   B. What relationship exists between workers' levels of education and unemployment? (Workers with more education are less likely to be unemployed than workers with less education.)

   C. What relationship exists between the earnings of men and women? (Women earn less money than men at all education levels.)

   D. What would explain this? (Studies suggest some direct discrimination in terms of wages paid for identical work. However, other factors are also important. Women still tend to take different subjects in school than men, and to enter lower-paying occupations. Many middle-aged and older women workers entered the labor force later in life, or left the labor market for some years to raise children. Point out to students that somewhere between ⅓ and ½ of the earnings difference between men and women can be explained by these differences in human capital variables, especially work experience.)

2. Make a copy of Activity 1. Cut apart the occupation slips and place all of them in the

★ all students–basic course material
■ average and above average students

shoebox or envelope labeled Occupations. Each occupation slip is coded with a letter, A-D, which corresponds to one of the level of education shoeboxes or envelopes described below.

3. Put one of the following labels on each shoebox: 1) Occupations; 2) College Graduate (A); 3) 1-3 Years of College (B); 4) High School Graduate (C); and 5) Less Than 4 Years of High School (D).

4. Make a copy of Activity 2 and cut apart the various income levels. Place these in the appropriate shoeboxes using the letter codes A-D. The wage ranges are taken from the 1994 *Occupational Outlook Handbook*, U. S. Department of Labor, Bureau of Labor Statistics. The data are published annually, so in future years you might want to update the ranges, or at least inflate each wage by the level of inflation since 1994, the year of the data in Activity 2.

5. Distribute copies of Activity 3 to the class.

6. One at a time have students draw an occupation slip. Then use the letter code on that slip to identify the appropriate education/earnings shoebox, and draw an earnings slip. Instruct students to announce their occupation and monthly earnings to the class and record the information on their Standard of Living Worksheets.

7. Provide several days for students to complete the Standard of Living Worksheets in Activity 3 outside of class. Encourage them to use the classified section of the local newspaper, yellow pages of a telephone book, grocery store flyers, restaurant menus, personal knowledge, and interviews to gather information to complete their budgets. They should turn in information sheets showing how they collected the data.

8. Once budgets are finished, divide students into small groups with at least one representative from each of the education/income levels. Distribute copies of Activity 4 and 5 to the class. Instruct students to answer the questions.

9. Have groups share their findings. Possible answers to discussion questions are:

A. Answers will vary. However, in general, students with higher incomes will have more choice in both the quality and quantity of goods and services they are able to purchase than individuals with lower incomes.

B. Answers vary.

C. Answers vary.

D. Some students will have incomes different from the median or average monthly wage for their occupations. Explain that median means the middle number in a series. Half of the workers earn more and half of them earn less than the median income. Some of the students will have higher incomes than other individuals with the same level of education and those who have a different level of education. Some will have lower incomes. Point out that different work habits and effort, levels of job responsibility, social "connections," etc., can explain these differences. Also, investment in human capital is risky. Some people with a great deal of education may not do as well as others with considerably less education. Ask students for reasons this might occur—e.g., some people do not stay in the labor market very long, their training may be in an area that is not in demand, they are not very productive, or they don't get along with others.

E. In general, individuals with more education have higher incomes than individuals with less education.

F. In general, individuals with higher income levels have a higher standard of living than individuals with lower income levels.

10. Review with students that education will have a major impact on their potential earnings. With more education, training, and experience they will have more career opportunities from which to choose, and the ability to earn more income.

11. Display Visual 2. Point out to students that a national survey conducted by the Department of Labor states that employers are looking for employees with the characteristics and skills listed on the visual. These attributes and skills will be important in the future because students can expect to change careers at least five or six times. In the workplace of tomorrow, more jobs will be problem-oriented, flexible, and organized in teams. In addition, workers will constantly need to update their skills and continue their education.

12. Have students list at least five things they could do now to improve their human capital, and state how working on these five things will benefit them in the future.

ASSESSMENT

Have students, working in groups, prepare a presentation for a younger group of students explaining how these students can improve their human capital and how this investment in their human capital can affect career choices and future income. Presentations should include visuals.

Have groups share their presentations with members of their class. Classmates should evaluate each presentation by listing the positives, the minuses, and the most interesting things in the presentations. Explain that each critique must include at least one statement in each category and suggestions on how to turn each minus into a positive. Using the information from the critiques, provide time for students to refine their presentations.

If possible, make arrangements for students to give their presentations to a group of younger students, preferably middle school students who will be making future course selection decisions for high school, or who may even be debating whether to stay in school or drop out.

ACTIVITY 1
OCCUPATION SLIPS*
(Occupation Shoebox)

Engineer (A)	Hotel Manager (A)	Technical Writer (A)
Physical Therapist (A)	Dietitian (A)	Chemist (A)
Systems Analyst (A)	Loan Officer (A)	Landscape Architect (A)
Registered Nurse (A)	Surveyor (B)	Licensed Practical Nurse (B)
Medical Records Technician (B)	Optician (B)	Drafter (B)
Science Technician (B)	Dental Hygienist (B)	Musical Instrument Repairer (B)

* The letters in parentheses designate the shoebox from which students should draw their monthly wage slip.

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ACTIVITY 1 (continued)

Bank Teller (C)	Receptionist (C)	Teacher's Aide (C)
General Office Clerk (C)	Payroll Clerk (C)	EEG Technologist (C)
Corrections Officer (C)	Dispatcher (C)	Bookkeeper (C)
Secretary (C)	Janitor (D)	General Maintenance Mechanic (D)
Gardener (D)	Roofer (D)	Painter (D)
Nursing Aide (D)	Butcher (D)	Garment Sewing Machine Operator (D)
Housekeeper (D)	Cook (D)	

* The letters in parentheses designate the shoebox from which students should draw their monthly wage slip.

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ACTIVITY 2
MONTHLY WAGE SLIPS (Shoebox A)
COLLEGE GRADUATE

2000	2300
2300	2600
2600	2600
2900	2900
2900	2900
3200	3200
3200	3500
3500	3800

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ACTIVITY 2 (continued)

MONTHLY WAGE SLIPS (Shoebox B)
1-3 YEARS BEYOND HIGH SCHOOL

1600	1800
1800	1900
1900	1900
2100	2100
2100	2100
2300	2300
2300	2400
2400	2500

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ACTIVITY 2 (continued)
MONTHLY WAGE SLIPS (Shoebox C)
HIGH SCHOOL GRADUATE

1000	1200
1200	1400
1400	1400
1500	1500
1500	1500
1600	1600
1600	1800
1800	2000

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ACTIVITY 2 (continued)
MONTHLY WAGE SLIPS (Shoebox D)
LESS THAN FOUR YEARS OF HIGH SCHOOL

700	900
900	1100
1100	1100
1200	1200
1200	1200
1300	1300
1300	1400
1400	1500

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ACTIVITY 3
STANDARD OF LIVING WORKSHEET

Name _____

Median Monthly Income _____

Education Level _____

Occupation _____

Directions: Use the classified section of your local newspaper, the yellow pages of a telephone book, grocery store flyers, restaurant menus, personal knowledge, and interviews to gather information to determine your monthly budget.

BUDGET ITEM	DOLLAR AMOUNT
Rent	
Food	
Transportation (Bus, train, or car and fuel and insurance)	
Taxes (30% of monthly income)	
Clothing	
Insurance	
Entertainment/Recreation	
Savings	
Miscellaneous (Household supplies, Toiletries, Cosmetics, Haircuts)	
TOTAL:	

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ACTIVITY 4
STANDARD OF LIVING QUESTIONS

Name _____

Share your monthly budget with other members of the group. Use this information and a copy of Activity 5, **Monthly Wages by Occupation and Level of Education** to answer the questions below.

A. 1. What kinds of choices did you have to make?

2. How were your choices different from other members of your group?

3. How were your choices similar to those made by other members of your group?

B. What surprised you most about your final monthly budget?

C. Write a brief description describing your standard of living using the budget you have developed.

D. 1. How did your monthly wage compare with that of other occupations in your level of education?

2. How did your monthly wage compare with the median monthly wage for your occupation?

3. How did your monthly income compare with that of individuals who had a level of education different from yours?

4. How do you explain these discrepancies?

E. In general, what is the relationship between amount of earnings and level of education?

F. What is the relationship between wage earnings and a family's standard of living?

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ACTIVITY 5
MONTHLY WAGES[1] BY OCCUPATION AND LEVEL OF EDUCATION

Occupations	Monthly Median Wage	Occupations	Monthly Median Wage
College Graduate			
Engineer	3103	Hotel Manager	3742*
Technical Writer	3389*	Dietitian	2497
Physical Therapist	2955	System Analyst	3508
Chemist	3500	Loan Officer	2920*
Landscape Architect	3492	Registered Nurse	2869
1-3 Years of College (Including Graduates of Technical/Community Colleges)			
Surveyor	2233	Optician	2170*
Medical Records Technician	1900*	Musical Instrument Repairer	1670*
Science Technician	2108	Drafter	2283
Dental Hygienist	2436	Licensed Practical Nurse	1790
High School Graduate			
Secretary	1975*	Teacher's Aide	1330*
Bank Teller	1233	Receptionist	1240
General Office Clerk	1983	Bookkeeper	1592*
Payroll Clerk	1750*	Corrections Officer	1933*
EEG Technologist	1947	Dispatcher	1680
Less Than Four Years of High School			
Cook	1050	Gardener	1100
Janitor	1108*	Nursing Aid	1150
General Maintenance Mechanic	1499	Roofer	1260
Painter	1504	Butcher	1240
Garment Sewing Machine Operator	868	Housekeeper	716

[1] Median monthly earnings for all workers in the occupation, except those with an asterisk, which show average monthly earnings (calculated as a numerical mean), rather than median earnings.

Source: *Occupational Outlook Handbook*, Bureau of Labor Statistics, May 1994.

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VISUAL 1
EDUCATION AND INCOME, 1990
(AGE 18 OR OLDER)

EDUCATION LEVEL	AVERAGE ANNUAL INCOME	
	Male	Female
College graduate (Bachelor's degree)	$38,820	$20,376
1-3 years of college	$24,024	$13,380
High school graduate	$22,236	$11,316
Not a high school graduate	$13,992	$6,948

Source: *Statistical Abstract of the United States*, 1994

UNEMPLOYMENT RATES[1] BY YEARS OF EDUCATION: PERSONS AGED 25-64

		Workers By Highest Level of Education			
YEAR	ALL WORKERS	LESS THAN 4 YEARS OF HIGH SCHOOL	HIGH SCHOOL GRADUATE	1-3 YEARS OF COLLEGE	4 OR MORE YEARS OF COLLEGE
1991	5.5	11.0	5.9	4.8	2.8
1987	5.7	11.1	6.3	4.5	2.3
1980	5.0	8.4	5.1	4.3	1.9

Source: *Statistical Abstract of the United States*, 1994

[1] March unemployment rates

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VISUAL 2
WHAT EMPLOYERS WANT

- Willingness and ability to learn
- Versatility and flexibility
- Good reading, writing, and math skills
- Communication skills (includes how you talk, listen, and understand)
- Problem-solving and creative thinking skills
- Ability to work with others

Source: *What Work Requires of Schools: SCANS Report for AMERICA 2000,* U.S. Department of Labor. June 1991.

LESSON ELEVEN
RICH MAN, POOR MAN

INTRODUCTION

The issue of income distribution has been controversial throughout history. Decisions about the distribution of income are made by individuals and firms making exchanges in resource markets, and also through the political process. Public policies, such as taxation and transfer payments, have been targeted at particular income groups to redistribute income. Some of these policies redistribute income from the rich to the poor; but surprisingly, some policies increase the share of income going to middle and upper-income families, making the distribution of income less equal.

CONCEPTS

Resource payments
Transfer payments
Personal distribution of income
Functional distribution of income
Proprietors' income
Corporate profits

CONTENT STANDARDS

The personal distribution of income classifies the population according to the amount of income they receive, including transfer payments.

Decisions about the distribution of income are made by individuals and firms making exchanges in the markets for productive resources (inputs), and also through the political process.

Public policies that can be used to redistribute income include taxation (e.g., progressive or negative income taxes), spending and assistance programs targeted at particular income groups, and programs designed to provide training to workers or to encourage private investments in education or other kinds of human capital.

Transfer payments are monetary payments or the direct provision of goods and services made by one party to another without receiving money, goods, or services in return.

The functional distribution of income classifies the income received by individuals and business firms according to the type of productive resources sold in resource markets.

There are four basic categories of income: wages, rent, interest, and profit.

OBJECTIVES

◆ Analyze the personal distribution of income.

◆ Identify sources of income differences.

◆ Classify resource payments (income) as wages, rent, interest, and profit.

◆ Analyze the structure of the functional distribution of income over the past 70 years.

LESSON DESCRIPTION

Students participate in an income redistribution simulation and interpret statistics about the distribution of income.

TIME REQUIRED

Two class periods. Day one—procedures 1-14. Day two—procedures 15-17 and Assessment.

MATERIALS

★ One copy of Activity 1 and 2 for each student.
One transparency each of Visuals 1, 2, 3, and 4.

PROCEDURE

1. Give a copy of Activity 1 to two or three students the day before teaching this lesson. Tell them to study for the exam but keep the information confidential. If they share the exam with any other student, they will receive a zero.

2. Distribute a copy of Activity 1 to each student. Announce that grades received will be included as a part of the semester grade. Allow 7-10 minutes for completion. Write the possible scores 20-0 on the board, in descending order.

3. Instruct students to exchange exams for grad-

★ all students–basic course material
■ average and above average students

ing. Display Visual 1. Ask graders to report scores and tally them next to each possible score. Establish a distribution with + and - categories in which a few students receive As, a few receive Fs, and most fall in between. (For example: A+ (20), A (19), A- (18), B+ (17), B (15-16), B- (14), C+ (13), C (10-12), C- (9), D+ (8), D (6-7), D- (5), F (4 or below)).

4. Explain that you have received many complaints about unequal grades. Today you will try to do something about the usual grade distribution.

5. Explain that graders should put an "X" through the exam score because you are going to make some adjustments. Tell graders to add one point to the score if a student has an F. They should subtract one point if a student has a B+ or above. Inform students that you will explain your rationale later.

6. Instruct graders to add one point to scores of students who are 16 years or older and subtract one point from students who are younger than 16. (Or pick an age that roughly divides the class into two equal-sized halves.)

7. Instruct graders to subtract one point from the scores of students who are shorter than 5'4" and add one point to the scores of students who are taller than 5'4". Those who are exactly 5'4" keep the same point count.

8. Instruct graders to calculate the new point score. Tally the new scores but do not change the letter grade ranges. Tell graders to return exams to test takers.

9. Explain that this exercise about grade distribution is designed to reflect several controversial issues concerning income distribution in our economy, and announce that student scores will *NOT* be a part of their semester grades. Note that some students were "rich" in points on the test, some were "poor," and most were somewhere in the middle.

10. Display Visual 2 and explain that a quintile represents 20 percent of families. For example, the first quintile is the 20 percent of families receiving the smallest money income; the second quintile is the 20 percent of families receiving the next-lowest income; etc.

Discuss:

A. In 1991, what percentage of national money income did the 20 percent of families with the lowest income receive? (4.5%)

B. In 1991, what percentage of national money income did the 20 percent of families with the highest incomes receive? (44.2%)

C. If we define the middle class as the middle 60 percent (the 3 middle quintiles), what percentage of national money income did those families receive? (10.7 + 16.6 + 24.1 = 51.4%)

D. According to this table, how have those percentages changed over time? (The portion of total income received by the first (lowest income) quintile increased through 1967 and then decreased. The portion of total income received by the fifth (highest income) quintile decreased through 1967 and then increased. The portion received by the middle quintiles increased up to 1957 and then decreased.)

Note: Students may be interested in the range of income levels associated with the quintiles for 1991. Those divisions were:

1st quintile	$17,000 or less
2nd quintile	$17,001 to $29,111
3rd quintile	$29,112 to $43,000
4th quintile	$43,001 to $62,991
5th quintile	$62,992 or above

Source: *Statistical Abstract of the United States*, 1993

(Optional: Students could calculate quintiles for their grade distributions before and after adjustments.)

11. Remind students that Visual 2 shows the personal distribution of family income. Define *personal distribution of income* as income received after cash transfer payments and before taxes. This distribution, therefore, reflects some redistribution of income in our society because of cash transfer payments. Define *transfer payments* as cash or in-kind benefits given to people from the

government. Individuals do not have to provide goods or services to the government to receive these payments. Discuss:

A. Name some cash transfer payments you have heard about. (Social Security payments, Aid to Families with Dependent Children, unemployment compensation, worker's compensation.)

B. Although the figures in Visual 2 do not include in-kind transfers, name some in-kind transfer payments you have heard about. (Food stamps, rent subsidies, and free and reduced-price school lunches.)

C. Why do you think the federal government distributes cash transfer payments? (To redistribute income and assist low-income families.)

D. Which of the adjustments made on the class exams would parallel cash transfer payments? (Giving points to students with scores less than D- and to older students.)

12. Explain that students have seen that people's incomes differ and now they will examine why those differences occur. Discuss:

A. Why were some student scores higher than others? (They may be smarter or better students in economics than others; therefore, they earned a higher score. Explain that differences in ability account for some income inequalities, but not all of them.)

B. Do you think people's level of education makes a difference in their income? (Statistics from the U.S. Bureau of the Census show that, in general, income increases as the level of education increases. For example, in 1989, the median income of males who graduated from high school was $26,609. For those who attended high school but did not graduate, the median income was $21,065. For male college graduates, the median income was $41,892.)

C. Do people who perform unpleasant or dangerous jobs tend to earn more income? (Yes, after adjusting for other differences such as education and physical skills. For example, coal miners and workers who put out oil fires tend to earn more because their jobs are dangerous.)

D. Is all income earned from work? (No, some people inherit wealth. They can invest this money to earn income.) Explain that two students were given the test ahead of time. This "inherited wealth" allowed the students to earn better scores.

E. Are some rich or poor people just lucky or unlucky? (Yes. A landowner might discover oil on his or her land. An investor might buy a certain stock just before it doubles in value. A student might study hard to become a civil engineer and graduate at a time when demand and salaries are very low. Some rock bands have big hits; others flop. A new actor may get a big break by starring in a movie that becomes very popular.)

F. Do any students live in a family with two income earners? One? (Generally, more income earners in a family means more income.)

G. Ask students to explain what you were trying to demonstrate when you instructed them to add a point for students who are taller than 5'4" and subtract for those who are shorter than 5'4". (Discrimination accounts for some income differences.) Ask students taller than 5'4" to raise their hands. Count how many males and females are in that group. Now count the males and females in the group shorter than 5'4". Gender discrimination is one type of discrimination that occurs in the workplace. Ask students for other examples. (Race, age, and so on.) Explain that differences because of discrimination are very difficult to calculate. In the past, men have received more than women on average, but, on average, men were better educated, worked longer hours, and had more work experience. These performance-related differences have to be eliminated before

determining how much of the wage difference is accounted for by current discrimination in paying different wages for identical work. However, the wage differences also led women to invest less in their own education and training, perpetuating the differences to some degree.

13. Explain that other comparisons are often made in looking at income distribution and redistribution. Students have seen that transfer payments make a difference in income distribution, but they have not seen how taxes also have an influence. Display Visual 3 and discuss:

A. Comparing income shares before and after federal taxes and cash transfers in 1980, what happened to the distribution of income? (The shares became more equal.)

B. What happened in 1990? (In general, the shares became more equal.)

C. Why do you think that the percentage received by the lowest income group increased and the share received by the highest income group decreased in 1980 and 1990? (There are many reasons; however, students are likely to remember that the U.S. income tax is a progressive tax system. The philosophy of a progressive tax system is that people with higher incomes are able to pay a larger percentage of their incomes as taxes than people with lower incomes. High-income people would be taxed more and the poor would receive transfers of income and in-kind services.)

D. How can higher income families reduce their taxes and ease the effects of a higher tax bracket? (There are many tax deductions they use that may not be as useful to low income families. The home mortgage interest deduction is an excellent example. Poorer families tend to rent rather than buy homes; therefore, they do not receive the interest deduction. Richer families can buy more expensive houses, have larger mortgage interest payments, and larger tax deductions. Overall, it has been estimated that the federal government "gave up" $45.5 billion in tax revenues from the mortgage interest deduction in 1994.)

E. Would you conclude that our overall system of cash transfers and taxes redistribute income? (Definitely, but some tax or cash transfer policies favor low-income families and some policies favor high-income families. Studies have shown that the federal tax system tends to be progressive, but state and local tax systems are less progressive given their use of sales and property taxes. Also, social security taxes tend to be regressive. Many studies have concluded that, across income levels earned by the vast majority of taxpayers, the overall tax system in the United States is broadly proportional.)

14. Instruct students to compare the first and second grade distributions (prepared in procedures 3 and 8, respectively). Ask them whether the second distribution is more equal or less equal. Then ask them to discuss whether they believe the new distribution is more fair or less fair, and why. Relate their discussion to the debate over various tax and assistance programs that redistribute family incomes.

15. Explain that income distribution can be described in other ways. Display **Visual 4**. Explain that the *functional distribution of income* classifies income received by individuals and businesses according to the type of productive resources sold in markets for productive resources.

16. Point out that there are four basic categories of income: wages, rent, interest, and profit. Explain that profits are included in both the corporate profits and proprietors' income columns. Define *proprietors' income* as income earned by single-owner business firms (sole proprietorships). Note that some of this income represents wages for work the proprietors do in their own business; the rest is profit for risking assets in a business that might go bankrupt. *Corporate profits* include dividends, corporate income taxes, and retained earnings. Discuss:

A. How is the majority of income earned in the U.S.? (Wages and salaries—income earned working for an organization not owned by the worker.)

B. What is the smallest category of income earned? (Rental income.)

C. How has the functional distribution of income changed over time? (The percentage share earned by sole proprietorships (especially family farms) and people who rent out resources they own has declined, as the percentage paid to wage and salary employees has increased. Profits and interest payments have fluctuated with national and international business conditions.)

17. Distribute a copy of Activity 2 to each student. Explain that students should read the statement and determine what type of income is described.

Answers to Activity 2

1. **I** 2. **R** 3. **W** 4. **P** 5. **P**

6. **W** 7. **TP** 8. **R** 9. **W** 10. **I**

ASSESSMENT

1. Do you favor or oppose the following proposals for government policies? Explain your position in terms of the policy's effect on income distribution. (The effect of each policy, in terms of making the distribution of income more or less equal, is noted in parentheses.)

A. Employers contribute to pension plans for employees. Their contributions are not counted as income by the IRS. (Less equal.)

B. Income earners may take a tax deduction for property taxes paid on the homes in which they live. (Less equal.)

C. Low income families may be eligible for an earned income tax credit which reduces their taxes. (More equal.)

D. Retired workers would not have to pay taxes on a portion of their Social Security benefits. (More equal.)

E. Tax credits are given to the disabled. (More equal.)

F. Income earners are eligible to take a tax credit for child care expenses. (Unclear—depends on whether more high income or low income families take the tax credit, and how much the credit lowers their taxes.)

2. Display the following chart on the board. Instruct students to select one country that has a relatively equal income distribution and one country that is relatively unequal. Ask the students to study the two countries and write a short paper on why the distributions are so different in the two countries.

Percentage Shares of Income (1975–1980)

Country	1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile
France	5.5	11.5	17.1	23.7	42.2
Japan	8.7	13.2	17.5	23.1	37.5
Israel	6.0	12.0	17.7	24.4	39.9
Mexico	2.9	7.0	12.0	20.4	57.7
Switzerland	6.6	13.5	18.5	23.4	38.0
United Kingdom	7.0	11.5	17.0	24.8	39.7
United States	5.3	11.9	17.9	25.0	39.9

Source: The World Bank, *World Development Report*, 1988.

ACTIVITY 1
WHAT'S YOUR EQ (ECONOMICS QUOTIENT)?

Name _____

Write "true" or "false" in the spaces below.
Do *NOT* write "T" or "F."

_____1. Money is one of the four basic types of economic resources.

_____2. When economists refer to "capital," they mean the amount of money necessary to start a business.

_____3. The law of demand states that price and quantity demanded are inversely related.

_____4. An increase in the costs of production will decrease supply.

_____5. A price floor above the equilibrium price will result in a shortage.

_____6. A pure market system with no government sector will not produce enough public goods.

_____7. If a business facing elastic demand for its product raises the price of the product, the business will receive more revenue.

_____8. An increase in the price of chickens will cause the supply curve for beef to shift to the right.

_____9. Voluntary exchange between two parties tends to make both parties better off.

_____10. The Social Security program is a social insurance and welfare program.

_____11. An increase in the rate of inflation will cause interest rates to fall.

_____12. U.S. currency is backed by the gold at Fort Knox and in government banks.

_____13. The amount of money in the United States is controlled by the Treasury Department.

_____14. If U.S. citizens would only "buy American," most of them would be better off economically.

_____15. New technology has been a major source of economic growth.

_____16. Highly paid athletes earn a large salary because they are worth it to their teams.

_____17. The value of money varies inversely with the price level.

_____18. When Congress lowers taxes, the level of total spending in the economy increases.

_____19. Whenever people make economic decisions, they incur an opportunity cost.

_____20. Any adult who does not have a job is counted as unemployed.

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ACTIVITY 2
WHAT'S MY INCOME?

Name _____

Each statement below indicates a type of income. In the space provided, write "W" if the statement describes wages and salaries, "R" for rent, "I" for interest, "P" for profit, or "TP" for transfer payment.

_____1. Mary Jones received $365 this year on her certificate of deposit.

_____2. William Walker received $3,600 from tourists using his Florida condo.

_____3. Terrence Harris received $675 in tips this year as a waiter.

_____4. Florence Smith received a $250 dividend check from General Motors.

_____5. Joel Lander sold potatoes for $40,000 this year and paid expenses (including the cost of his own time) of $30,000, thereby netting $10,000.

_____6. Maria Gonzalez is a manager at a local grocery store, where she earns $27,000.

_____7. Aunt Ethel received her Social Security check for $567 this month.

_____8. The Hulls received $5,000 this year leasing land to a farmer.

_____9. Mr. Chang received a bonus of $2,000 this year for being such a valuable salesperson.

_____10. Tyrone Jackson earned $330 on his savings account.

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VISUAL 1
ANSWERS TO WHAT'S YOUR EQ?

False 1. Money is one of the four basic types of economic resources.

False 2. When economists refer to "capital," they mean the amount of money necessary to start a business.

True 3. The law of demand states that price and quantity demanded are inversely related.

True 4. An increase in the costs of production will decrease supply.

False 5. A price floor above the equilibrium price will result in a shortage.

True 6. A pure market system with no government sector will not produce enough public goods.

False 7. If a business facing elastic demand for its product raises the price of the product, the business will receive more revenue.

False 8. An increase in the price of chickens will cause the supply curve for beef to shift to the right.

True 9. Voluntary exchange between two parties tends to make both parties better off.

True 10. The Social Security program is a social insurance and welfare program.

False 11. An increase in the rate of inflation will cause interest rates to fall.

False 12. U.S. currency is backed by the gold at Fort Knox and in government banks.

False 13. The amount of money in the United States is controlled by the Treasury Department.

False 14. If U.S. citizens would only "buy American," most of them would be better off economically.

True 15. New technology has been a major source of economic growth.

True 16. Highly paid athletes earn a large salary because they are worth it to their teams.

True 17. The value of money varies inversely with the price level.

True 18. When Congress lowers taxes, the level of total spending in the economy increases.

True 19. Whenever people make economic decisions, they incur an opportunity cost.

False 20. Any adult who does not have a job is counted as unemployed.

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VISUAL 2
THE PERSONAL DISTRIBUTION OF FAMILY INCOME: PERCENTAGE OF NATIONAL MONEY INCOME RECEIVED BY FAMILY QUINTILES

Year	1st Quintile (lowest)	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile (highest)
1947	5.0	11.9	17.0	23.1	43.0
1957	5.1	12.7	18.1	23.8	40.4
1967	5.5	12.4	17.9	23.9	40.4
1977	5.2	11.6	17.5	24.2	41.5
1987	4.6	10.8	16.9	24.1	43.7
1991	4.5	10.7	16.6	24.1	44.2

Source: U.S. Bureau of the Census, *Current Population Reports*, series P-60 (Washington, D.C., U.S. Government Printing Office, 1992).

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VISUAL 3
THE IMPACT OF TAXES AND TRANSFERS ON INCOME

	Pre-Tax, Pre-Transfer Income Share (%)		Post-Tax, Post-Transfer Income Share (%)	
	1980	1990	1980	1990
1st Quintile	2.0	1.8	6.8	5.5
2nd Quintile	9.3	8.3	11.3	9.9
3rd Quintile	15.5	14.1	15.8	14.5
4th Quintile	23.1	22.0	22.1	21.2
5th Quintile	50.3	54.3	44.5	49.5

Source: E. Gramlich, R. Kasten, and F. Sammartino, "Growing Inequality in the 1980s: The Role of Federal Taxes and Cash Transfers" in *Uneven Tides: Rising Inequality in America*, edited by S. Danziger and P. Gottschalk, 1993.

VISUAL 4
THE FUNCTIONAL DISTRIBUTION OF INCOME (%)

	Wages & Salaries	Rental* Income	Net Interest	Corporate Profits	Proprietors' Income
1929	60.0	6.0	6.0	11.0	17.0
1939	67.0	4.0	5.0	8.0	16.0
1949	66.0	3.0	1.0	13.0	17.0
1959	68.6	3.6	2.5	12.8	12.6
1969	72.4	2.3	4.2	11.2	9.9
1979	73.4	0.1	7.4	9.9	8.9
1989	73.0	– 0.3	10.7	8.5	8.2
1991	74.6	– 0.2	9.9	7.6	8.1

Source: *Economic Report of the President,* 1993 and earlier years.

* Rental payments made to corporations are reflected in the profits category. Depreciation charges account for negative values in 1989 and 1991.

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LESSON TWELVE
PUBLIC GOODS AND SERVICES

INTRODUCTION

Most goods and services produced in the marketplace are private goods and services. This kind of good or service is purchased by a consumer who desires it and can afford it, and then consumed only by that individual or anyone he or she gives it to. But some goods and services must be produced by the public sector or government. Public goods and services are paid for through tax dollars and are available to everyone, even those who do not pay taxes. That means taxpayers have an incentive to use public goods, and try to get more of them produced, while shifting tax burdens to others. This is known as "free riding."

Public goods are characterized by shared consumption and nonexclusion. Nonexclusion means that it is difficult to exclude nonpayers from receiving the benefit of a good or service once it is produced. Shared consumption means that the consumption of a good or service by one individual does not reduce the amount available for others to consume. Although many goods and services are produced by the government, only those that exhibit these two characteristics, shared consumption and nonexclusion, are considered pure public goods and services.

CONCEPTS

Public goods and services
Taxes
Nonexclusion principle
Shared consumption
"Free Riding" problem

CONTENT STANDARDS

Only the government will supply public goods, due to shared consumption and nonexclusion properties of these products.

Shared consumption (or nonrival) products are those that can be used simultaneously by more than one person without reducing the amount of the product available for others to consume.

A nonexclusionary product is one that, once produced, cannot be withheld even from those who do not pay for it.

OBJECTIVE

◆ Explain why the production of public goods and services is a role for government due to the concepts of shared consumption and nonexclusion.

LESSON DESCRIPTION

Students experience the consumption of a private and public good in the classroom and draw conclusions about their characteristics. Then they conduct a taxpayer survey and make generalizations about people's incentives to pay a share of the costs for goods and services they will receive whether or not they pay for them.

TIME REQUIRED

Two class periods. Day one—procedures 1-6. Day two—procedure 7 and Assessment.

MATERIALS

One transparency and one copy of Visual 1
★ Three copies of Activity 1 for each student
★ One copy of Activities 2 and 3 for each student
Two small pieces of paper per student

PROCEDURE

1. Inform the class that there will be a surprise quiz today consisting of four questions. Show students a folded and stapled copy of Visual 1 which includes both the questions and answers to the quiz. Tell students that you are selling these for $1 each and you are willing to take an IOU. You will *not* let anyone who buys the handout share it with other students.

2. Distribute two small pieces of paper to each student. Instruct students to write their name on one of the sheets of paper and write yes below their name if they wish to purchase the quiz sheet, or no if they do not. Have students save the other sheet of paper for Round 2. Collect all sheets and tally the results. Write the results on the chalkboard under the heading, Round 1.

★ all students–basic course material
■ average and above average students

3. Now tell the class that you have decided it would be easier for you and require less paper—which is in short supply at school—if you put Visual 1 on a transparency. Display the title of Visual 1 on the overhead for all students to see.

4. Inform students that you are still willing to sell this information for $1. Instruct students to write their name on the second sheet of paper and "yes" if they wish to purchase the information on the transparency, or "no" if they do not. Collect all the sheets and tally the results. Place the results on the chalkboard under the heading, Round 2.

5. Lead a class discussion by posing the following questions.

A. Why were more students willing to buy the "Economic Quiz with Answers" in Round 1 than in Round 2? (The information was available only to those students who paid for it in Round 1. In Round 2, some students should have recognized that if one person pays to have the transparency displayed, the teacher will not be able to prevent others from viewing it.)

B. Explain that private goods and services are those that can be purchased and consumed by one individual at a time, and that individuals who do not pay for a private good can be excluded from using it. Ask students for examples of private goods. (Hamburgers, cars, pizza, movie tickets, and just about everything else a teenager buys.) Ask students in which round the "Economic Quiz with Answers" was like a private good, and explain why. (Round 1)

C. Explain that public goods are those that, once available, can be enjoyed or used by numerous individuals at the same time without reducing the amount of the good available for others to use. Also, public goods cannot be withheld from those who don't pay for them. With public goods, individuals will often not volunteer to pay as much for a product as they really value it, because they can "free ride" and enjoy the goods or services even if other individuals pay for them. Have students explain how the transparency of Visual 1 was a public good. Ask students for other examples of public goods. (They are likely to suggest roads, dams, national defense, public education, the court system, lighthouses, weather forecasts, street lights, police and fire protection, national forests, and wilderness areas.) Point out that not all government-produced goods and services are pure public goods and services, because crowding and congestion often mean that some peoples' use of the products will keep others from using them, and in some cases it is possible to keep those who do not pay for products provided by government from consuming them. Only products with the two characteristics of shared consumption and nonexclusion are considered *pure* public goods and services.

D. What happened to your incentive to pay for the quiz information when it was available to you whether you paid for it or not? (Students had less incentive to pay—this is the "free rider" problem.)

E. What happens to consumers' incentive to pay for public goods and services, such as dams, national defense, roads and police protection, when they can obtain these goods and services whether they pay for them or not? (There is less incentive to pay.)

F. If consumers have little incentive to pay for goods and services, what happens to the amount of the goods and services produced? (There is less incentive and wherewithal to produce them, even though consumers may really want them.)

G. Since consumers are unwilling to pay for these goods and services, who is going to pay for them? (Government must arrange for the production of goods and services that involve shared consumption, or when it is difficult to exclude those who are unwilling to pay for a product from using it.)

H. How does government do this? (Through taxation, government can require citizens to pay for their share. In this way, the "free rider" problem can be solved, or at least reduced.)

6. Distribute three copies of Activity 1 to each student. Tell them to survey at least three adults.

7. Once surveys are complete, divide students into groups and distribute Activity 2 to the class. Instruct students to tally their findings from the survey and use this information to answer the questions. As a class, have groups share their conclusions and generalizations.

ASSESSMENT

Distribute Activity 3 to the class. Instruct students to locate two newspaper articles on public goods and services and attach the articles to the handout. They are to answer the six questions on Activity 3 for each article.

ACTIVITY 1
PUBLIC GOODS AND SERVICES SURVEY

Name _____

All the public goods and services listed below are currently paid for by taxes. For each good or service, place a check mark in the appropriate column that best expresses your viewpoint.

Column 1—Check Column 1, "Pay For As Used," if you believe that this good or service should not be paid for with tax dollars. People should pay for this good or service individually when they use it. Individuals who do not pay will do without this good or service.

Column 2—Check Column 2, "Pay for with Tax Dollars," if you feel this good or service should continue to be provided with tax dollars.

Public Goods and Services	Column 1 Pay For As Used	Column 2 Pay For With Tax Dollars
National Defense		
Public Schools		
Highways and Roads		
Dams		
Police Protection		
State Universities		
National Forests		
Weather Forecasts		

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ACTIVITY 2
PUBLIC GOODS AND SERVICES SURVEY—GROUP WORK

Name _____

Working with a group, combine your survey results and record the information below.

SURVEY TOTALS		
Public Goods and Services	**Column 1 Pay For As Used**	**Column 2 Pay For With Tax Dollars**
National Defense		
Public Schools		
Highways and Roads		
Dams		
Police Protection		
State Universities		
National Forests		
Weather Forecasts		

Use this information to answer the following questions:

1. In general, how do people feel about paying for public goods and services as they use them rather than paying for them with tax dollars? Are they more willing to pay for some public goods and services through taxes than others? Which ones? How do you explain this behavior?

2. What would happen if the public goods and services on the survey list were produced and distributed based on the results of your survey?

3. Why would it be difficult to provide some of the public goods or services using the private sector, making those who use the goods and services pay for them?

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ACTIVITY 3
NEWSPAPER ACTIVITY—ASSESSMENT

Name _____

Locate two newspaper articles on public goods and services. Attach the articles to this activity page. For each article, answer the six questions below.

1. What is the public good or service discussed in this article?

2. Is this a pure public good or service, or something produced by the government that might be produced and sold by private businesses? Explain.

3. Why is this good or service provided using tax dollars?

4. What level of government provides the good or service?

5. How does this public good or service benefit your community and you personally?

6. What would happen if government stopped using tax dollars to provide this good or service? How would this affect your community and you personally?

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VISUAL 1
ECONOMIC QUIZ WITH ANSWERS

1. **Who wrote, "In this world nothing is certain but death and taxes?" (Benjamin Franklin)**

2. **Who was the author of *The Wealth of Nations*? (Adam Smith)**

3. **Who wrote *The General Theory of Employment, Interest, and Money*? (John Maynard Keynes)**

4. **What does TNSTAAFL mean?**
   (There's no such thing as a free lunch.)

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LESSON THIRTEEN
THIRD-PARTY COSTS AND BENEFITS

INTRODUCTION

If some of the costs or benefits entailed in either the production or consumption of a product "spill over" to people other than the producers and consumers of the product, and if the costs of collecting for those costs and benefits are substantial, private markets will fail to account for these third-party effects. As a result, too much of the product will be produced when spillover costs (also known as negative externalities) are present, because producers will not have to pay to cover those costs. Too little will be produced when there are significant spillover benefits (also known as positive externalities), because the people who receive the spillover benefits didn't pay to get them, and, if they had paid, the producers of these goods and services would have been willing to produce more of them.

To correct these market failures, government agencies can regulate or tax the production and/or consumption of products that generate spillover costs, and subsidize the production and/or consumption of products that generate spillover benefits. Or they can try to lower the costs of collecting for the benefits and costs in private markets, for example by defining and enforcing property rights to the resources affected by the spillover costs and benefits.

CONCEPTS

Market failures
Externalities (spillover benefits and costs)
Transaction costs

CONTENT STANDARDS

Externalities exist when some of the costs or benefits associated with the production or consumption of a product "spill over" to third parties other than the direct producers and consumers of the product.

Positive externalities (spillover benefits) result in the underproduction and underconsumption of a product, since not all benefits are reflected in consumers' demand for the product.

Negative externalities (spillover costs) result in the overproduction and overconsumption of a product, since not all costs are reflected in producers' supply of the product.

Government agencies can correct for the over- or underproduction/consumption of products due to externalities through the use of tax policies, subsidies, or regulations.

Establishing and implementing government policies and programs to correct for market failures is itself a costly activity, and only when the expected benefits of such programs are greater than the expected costs involved are these actions economically justified.

OBJECTIVES

- Distinguish between cases where there are, and are not, market failures related to external costs or external benefits.

- Evaluate the effectiveness of individual vs. governmental remedies for externalities, under conditions of both high and low transaction costs.

- Depict government policies dealing with externalities using a supply and demand model, and identify the over- and underproduction and consumption associated with this kind of market failure.

LESSON DESCRIPTION

Students participate in a role-playing exercise that initially depicts a situation that may appear to involve externalities but does not. They then act out further developments involving external costs in cases where transaction costs are first very low, and then much higher. Through discussion questions on this activity, students should understand how these different circumstances may well call for different kinds of public policy remedies.

A worksheet activity requires students to look at both external benefits and external costs in the

context of a simple supply-and-demand model. A second activity sheet is used for assessment purposes, and asks students to write short paragraphs on two situations involving many of these concepts and issues.

TIME REQUIRED

Two class periods. Day one—procedures 1-4 ("Life on Dismal Lake"). Day two—procedure 5 and Assessment.

MATERIALS

★ Copies of Activities 1, 2, and 3 for each student in the class.

PROCEDURE

Group Activity: "Life on Dismal Lake"
(Procedures 1- 4)

1. Select four students to act out Part I of the scenario on Activity 1 as you or a student read it to the class. One student takes the role of Mama Smith, another the role of Papa Smith, and two students play the Smith's teenage children. Read the passage slowly, with frequent pauses so that students can act out the events that are described. Or, if you prefer, simply distribute copies of Activity 1 to students, and have them read the material and answer the questions.

2. Pick one more student to play the role of Snively Whiplash and continue with Part II of the scenario.

3. Bring 15 more students up to participate in the role-playing scenario, and read Part III.

4. Distribute copies of Activity 1 to students so that they will have the text of the scenario to work with, and debrief the "Life on Dismal Lake" activity by answering the discussion questions. Suggested responses are provided below:

A. Was there any externality problem when only the Smith family lived on Dismal Lake? If so, how should this problem be solved?

(While some may argue that the Smith teenagers imposed external costs on their parents, if we treat the family as a single economic unit, as economists usually do, then there is no externality problem because there is no third party being hurt by the pollution. The Smiths bear all of the costs whether they decide to carry the garbage out to the road for pickup, or to pollute the lake and live with the dirty, smelly, lake. They eventually choose not to pollute the lake, which is usually—but not always—the case when people think about trashing their own property and home.)

B. Was there an externality problem when Snively Whiplash and the Smiths were the only people living on the lake? If so, how should this problem be solved?

(There is an external cost here, because the Smiths bear some of the costs of Whiplash's garbage "disposal." Most students are likely to say that the Smiths should get the county police and courts to threaten Whiplash with fines or a jail sentence if the pollution continues, and that may be sufficient to resolve the externality problem. However, note the costs incurred by the Smiths and the county, for police, courts, monitoring the lake for pollution, etc.)

C. Suppose it is decided either that Whiplash has the legal right to keep throwing trash in the lake because Whiplash owns almost all of the lake anyway, or that the lake is too far away from any county enforcement agencies to effectively stop the pollution. What can the Smiths do now, if anything?

(They can clean the lake up themselves, or offer to take Whiplash's garbage out to the road for pickup themselves, or even pay Whiplash to stop polluting. Under this possibility it is true that the Smiths pay more, but remember they are the ones who want the clean lake, and point out that there wouldn't be an externality problem if they didn't live on the lake and Whiplash owned it all. In that case Whiplash would bear all of the costs of any pollution or of taking out the garbage, just as the Smiths

did before they sold most of the land to Whiplash. If they offer to pay Whiplash not to pollute, Whiplash will bear some costs by polluting, so at least part of the external cost has been internalized. Surprisingly, then, whether property rights are defined so that the Smiths have the right to clean water, or Whiplash has the right to pollute it, we can end up with no pollution if the Smiths are willing to pay Whiplash enough to stop. Or, Whiplash might pay the Smiths enough to make them willing to accept the pollution. So we may well end up with the same amount of pollution in the lake either way, and the only thing that changes is whether the Smiths or Whiplash end up paying for what they want.)

D. What incentives did Whiplash have to stop polluting before he sold the land around Lake Dismal?

(Obviously that made the property values higher, which would let Whiplash charge a higher price for the lots.)

E. When the pollution begins with 16 families living on the lake, can the Smiths (and the other nonpolluters) deal with the problem the same way they might have when just Whiplash and the Smiths lived on the lake?

(It is now much more difficult to identify who is polluting, to determine how much they are polluting, and to monitor whether they have stopped or continue to pollute. Moreover, with so many families involved, it will be much more difficult to work out financial agreements between all of the families, either to stop the pollution or for the polluters to compensate the nonpolluters. In other words, with more people involved the transaction costs are much higher, and it becomes much more likely that direct government rules and enforcement will be required to deal with the problem.

Finally, point out that most externality problems occur where property rights are poorly defined and enforced, and often where it is very difficult to define and enforce those rights. For example, most pollution problems involve air, rivers and streams, or oceans, which nobody really owns. Similarly, public parks are more often littered than people's front yards, especially in neighborhoods with single-family homes.)

5. Distribute copies of Activity 2 to students. When they have completed the sheet, review it. Suggested answers are provided below:

(The definition of externalities is given in the Introduction and Content Standards for this lesson. The classic example of third-party costs, or negative externalities, is pollution. Other examples include the costs of alcohol consumption borne by the nondrinking victims of DWI accidents, and the costs paid by those with medical insurance when their premiums are raised because hospital charges are raised to cover the care provided to those who do not have insurance and cannot pay their bills. Examples of external benefits include higher housing values neighbors enjoy when people in their neighborhood restore and landscape their property; or benefits from vaccinations against contagious diseases, which lower chances of catching the disease even among those who are not vaccinated; or benefits to an entire community such as lower unemployment payments and crime rates, which are associated with raising the average educational attainments of people who live in low-income neighborhoods.

Recognizing the spillover costs shifts the supply curve leftward, resulting in a higher equilibrium price and lower output level. If producers don't have to recognize those costs they produce on the supply curve that lies too far right, with a lower price and higher output level. Recognizing the positive externalities shifts the demand curve to the right, leading to a higher price and output level. If the external benefits aren't recognized, production takes place on the demand curve based only on the private benefits received by those who do pay for the product (not by those who benefit without paying), at a lower equilibrium price and output level.)

ASSESSMENT

Distribute copies of Activity 3 to students, and review their evaluations of the three proposals in both scenarios.

(As shown in the debriefing for the Dismal Lake activity, there is something to be said for both Proposals 1 and 3 in the first scenario, even though Dismal Lake is an example of an external cost problem, not an external benefit as suggested in Proposal 1. The second proposal violates the economic way of thinking by looking only at the costs of the pollution, and not considering the economic costs of reducing pollution. Typically, as pollution controls and clean-up procedures are implemented, the benefits are initially high but fall off as the air or water becomes cleaner and cleaner, while clean-up costs for each "unit" of pollution are initially low, but become higher and higher as it becomes harder to find and remove the pollution once a lot of it has already been cleaned up. From an economic standpoint, then, the optimal amount of pollution is almost never zero, except in cases where a pollutant is extremely toxic. Effluent taxes and market-based programs such as public auctions for pollution permits are often suggested by economists as effective ways to get the right amount of pollution produced at the lowest possible cost.

In the second scenario, if no additional business will be brought into the city either by the baseball team or the new stadium, and if all of the spending is simply reallocated away from existing firms in the city, there is little rationale for the public investment in the program. That supports Proposal 1, especially if there are substantial external costs such as traffic jams and falling property values. If there are extensive opportunities for new businesses to be created and to attract higher spending in the city, then the stadium may well be a good infrastructure investment, supporting Proposal 3. The idea that those who use public services and facilities should pay for them certainly supports the user fee in Proposal 2. However, it is unlikely that the city will be able to recover all of the cost of the stadium with such fees—or similar taxes on hotel rooms, etc.—in less than a decade or so. If that were true, private businesses would be likely to build the stadium in the first place, as they already have in some cities.)

ACTIVITY 1
"LIFE ON DISMAL LAKE"

Name _____

Part I.

The Smith family owns all of the land around 100-acre Dismal Lake, and builds its home on the eastern edge of the lake. Life is very pleasant for the first year. Then, unknown to Moma and Papa Smith, when the Smith children take out the family garbage once a week, they begin throwing it in the Lake because that is easier than carrying the bags all the way out to the road for the county trash trucks to pick it up. A few months later the lake begins to stink, and Moma and Papa Smith discover where the garbage has been going. The Smith children are now dismal, because they have to clean up the lake instead of going out with their friends for the next four weekends.

Part II.

When the Smith children go off to college, Mr. and Mrs. Smith sell all of the land around Dismal Lake except their one-acre homestead to Snively Whiplash, an unscrupulous land developer. Whiplash builds a home on the western edge of the lake, and immediately starts throwing garbage into the lake instead of taking it out to the road for the county trash service.

Part III.

One year later, Whiplash stops throwing trash in Dismal Lake, subdivides the land around the lake, sells homestead plots to 15 families for $100,000 each, and moves away. The 15 new owners each build large houses on their lots. Then, after a few months, garbage starts to show up on and around Dismal Lake again—this time from at least two families. The Smiths call a neighborhood meeting to discuss the problem. At the meeting, four of the families accuse five other families of throwing their garbage in the lake. The accused families deny the charges, accuse other families instead, and the meeting breaks up with everyone shouting at everyone else. Dismal Lake continues to be a smelly, dismal place.

Discussion Questions:

1. Was there any externality problem when only the Smith family lived on Dismal Lake? If so, how should this problem be solved?

2. Was there an externality problem when Snively Whiplash and the Smiths were the only people living on the lake? If so, how should this problem be solved?

3. Suppose it is decided either that Whiplash has the legal right to keep throwing trash in the lake because he owns almost all of the lake anyway, or that the lake is too far away from any county enforcement agencies to effectively stop the pollution. What can the Smiths do now, if anything?

4. What incentives did Whiplash have to stop polluting before he sold the land around Lake Dismal?

5. When the pollution begins with 16 families living on the lake, can the Smiths (and the other nonpolluters) deal with the problem the same way they might have when just Whiplash and the Smiths lived on the lake?

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ACTIVITY 2
EXTERNALITIES WORKSHEET

Name _____

1. Define negative externality or third-party cost.

   _____

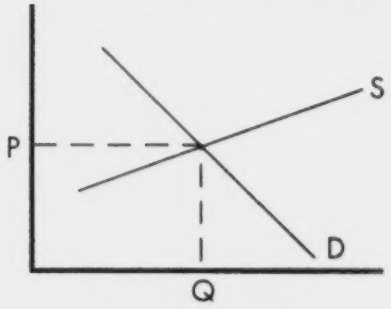
2. Give three examples of third-party costs.

   a _____

   b _____

   c _____

3. In the supply-and-demand graph below, only the private costs and benefits have been accounted for. Draw the new supply curve, and show the new equilibrium price and quantity for steel if the external costs of pollution were also counted as costs of production.



TONS OF STEEL

4. Would more or less steel be produced according to the new supply curve?

   _____

5. Would the price be higher or lower?

   _____

6. Why may products that entail third-party costs be over-produced?

   _____

   _____

1. Define positive externality or third-party benefit.

   _____

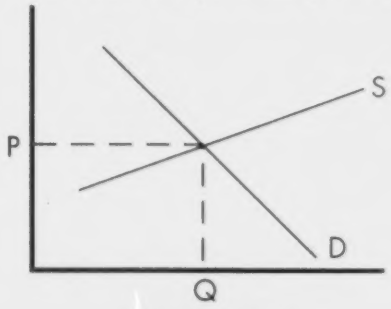
2. Give three examples of third-party benefits.

   a _____

   b _____

   c _____

3. In the supply-and-demand graph below, only the private costs and benefits have been accounted for. Change the graph to show the new demand curve for education if all third-party benefits to the community were counted as part of demand. Show the new equilibrium price and quantity.



EDUCATION

4. Would more or less education be purchased according to the new demand curve?

   _____

5. Would the price be higher or lower?

   _____

6. Why may products that yield third-party benefits be underproduced?

   _____

   _____

ACTIVITY 3
WHAT WOULD YOU DO?

Name _____

1. A manufacturing plant pollutes a nearby river, much to the displeasure of the residents downstream. At a town meeting, residents discuss three proposals for solving the pollution problem. Based on your understanding of externalities, pick the proposal you think is best and defend your answer.

Proposal 1: Since the downstream residents will receive the benefits of pollution control, they should pay for it. This is a clear case of external benefits or positive externalities. A property tax should be placed on the residents downstream.

Proposal 2: The government should force the plant to close. That is the only way to stop all the pollution. There is no reason for the downstream residents to suffer. Any other solution still leaves some dirty water.

Proposal 3: The company is not counting all of its costs of production. Keeping the river clean should be one of these costs. A tax, called an effluent tax, should be placed on the company for each cubic foot of polluted water it releases into the river.

2. The National League has awarded a new franchise for a baseball team to be established in Indianapolis, Indiana, but only if the new team, the Indiana Racers, has a major league stadium designed specifically for baseball. Indianapolis will have to build a new stadium if a team is to be awarded a franchise in that city. Proponents argue that the team will generate new business, provide jobs, increase tax revenues, and promote tourism in Indianapolis because of the greater national exposure. Opponents argue that most of the money spent on baseball games will be by Indianapolis residents, who will simply reduce their spending on other things. Thus, there will be no net job creation or tax revenues, and few new tourists coming to Indianapolis in the summer. Others say that the stadium, wherever it is located, will cause property values to go down and create traffic and parking problems and noise pollution. Voters have three proposals before them. Using your knowledge of externalities, write a paragraph in support of each proposal. What assumption concerning external costs and benefits does each proposal make?

Proposal 1: No city money should be used in the construction of the stadium.

Proposal 2: The city should place a tax on each ticket sold to pay for the stadium.

Proposal 3: The city should build the stadium and lease the right to play there to the baseball team, at a subsidized rate.

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LESSON FOURTEEN
PUBLIC CHOICE: ECONOMICS GOES TO WASHINGTON AND INTO THE VOTING BOOTH

INTRODUCTION

Economist James Buchanan won the Nobel prize in economics in 1987, for pioneering work he had done with Gordon Tullock and others in the new field of public choice economics. This approach applies the basic economic way of thinking to group decisions made through the electoral process or by some government body.

That means thinking of voters, elected officials, and government employees as people who pursue their own self-interest, rather than some altruistic view of the public good. Before Buchanan's work, most philosophers, political scientists, and even many economists, had not systematically applied that way of thinking to the public sector, except to decry individual cases of corruption that came to light more frequently than many people wanted to think about.

Public choice ideas are not yet included in many high school economics textbooks, or even in some college-level principles textbooks. But that is changing rapidly, especially at the college level where the textbook revision and adoption cycle is much shorter. Because this material may be new to many teachers, a brief appendix of background material is included at the end of this lesson. If you are not familiar with these ideas, read the appendix before you look through the activities in this lesson.

The instructional activities are built around the most visible and exciting symbol of public choice in a democratic political system, elections. Be sure your students also recognize that public choice ideas can also be used to explain the day-to-day actions of both ordinary government employees (aka bureaucrats) and politicians.

CONCEPTS

Self-interest
Expected benefits and costs of voting
Information and search costs
Special interest effects
Systematic failure of government programs and policies

CONTENT STANDARDS

Public policies involve economic and political choices and are influenced by the actions of special interest groups as well as by both positive and normative economic concepts.

Government policies often affect the well-being of people, businesses, and regions differently, due to the impact of different kinds of taxes, transfer payments, laws, regulations, and the provision of goods and services that are not used equally by all groups.

OBJECTIVE

◆ Critically assess the actions of voters, elected officials, and public employees, working from the basic assumption that individuals in each of these groups will follow their own economic self-interest.

LESSON DESCRIPTION

Students will participate in a series of classroom elections to see:

1. What are special interest effects, and how do they develop?

2. How can the costs of voting and acquiring information about candidates or propositions on a ballot affect whether or not people vote, and if so how informed they will be?

3. What are the causes and consequences of logrolling and similar kinds of collusion by elected officials?

TIME REQUIRED

Three or four class periods. Day one—conduct elections 1-3 (procedures 1-7). Day two and perhaps three—prepare for and conduct election 4 (procedures 8-11). Day three or four—conduct election 5 and the assessment activity (procedures 12 and 13).

BEST COPY AVAILABLE

MATERIALS

Play money—start each student with a $5 bill and five $1 bills. Prepare 10 additional $5 bills and 10 additional $1 bills for each student participating in the elections, to be distributed as directed in the activities. Later, if possible, allow students to purchase inexpensive products or classroom privileges with the money they "earn" in the activities.

★ Information sheets for each student participating in the elections, and also from

■ Activity 2 if you decide to use optional Election 3.

Copies of Visuals 1 and 3 for each student and, if you use optional Election 3, copies of Visual 2 for each student. Or prepare overhead transparencies of the tables that students can view together.

Copies for each student of a ballot, or part of a ballot, from a recent or forthcoming election held in your community. (Copies are often available in daily newspapers printed on or just before election days, or from groups such as the League of Women Voters.) The ballot should list approximately eight candidates or referendum items. Some of these candidates or items should be familiar to the students, and some unfamiliar. Students will research positions represented by some of the candidates and issues, or you should provide fact sheets on the candidates and issues for the students.

PROCEDURE

Election 1: Special Interest Effects—Introduction. Procedures 1 - 4.

1. Divide the class into five groups with equal numbers of students to participate in a series of classroom elections; use any "leftover" students to help collect ballots, tabulate election results, and distribute materials. (Or, choose five students to participate in these elections held in the front of the classroom, for other students to observe and discuss. Do ***NOT*** debrief the elections until you reach procedure 7.)

2. Instruct all students participating in the elections to vote according to their own self-interest. In this activity those interests will take the form of "cash," so students should do whatever leaves them with the most money. Make payouts as directed after each election, using a classroom currency or play money from a board game. If possible, allow students to use the "money" to purchase products or classroom privileges, so they have stronger incentives to participate seriously. Start each student with a $5 bill and five $1 bills, for a total of $10.

3. Distribute copies of the appropriate student information sheets from Activity 1. *Note*: Each student should receive information only about their own benefits from options A and B, not about the benefits for other students or groups.

4. After making sure that all students understand that they are to vote in their own self-interest, and that they are reading the information sheets correctly in terms of their expected benefits from the different election outcomes, conduct Election 1. Record the election result on the chalkboard or an overhead transparency. Make the "cash" payouts as shown on the information sheets. If you divided the class into equal-sized groups, you should pay *each* student in a group the payoff that is indicated on the student information sheets, and in Visual 1.

Election 2: Special Interest Effects—Continued

5. Announce that in Election 2, the same information sheets will be used that were used in Election 1. Now, however, there will be a $4 cost of voting, collected only from those who decide to vote. Conduct election 2 after making sure students understand the new procedure. Collect the $4 from all voters. Record the election result on the chalkboard or an overhead transparency. Make the "cash" payouts as shown on the information sheets, and in Visual 2.

Groups 3 and 4 should choose not to vote. If they did vote, point out that they are spending more than they can expect to gain—not a good way to increase their "cash" positions.

Groups 1, 2, and 5 may or may not choose to vote, depending on how optimistic they are about

★ all students–basic course material
■ average and above average students

winning the election. If group 5 votes and groups 1 and 2 do not, announce the outcome (option A still wins). Hold another election in which the benefits to groups 1, 2, and 5 are doubled, but the benefits to groups 3 and 4 remain the same, as do the costs of voting for all students/groups. Continue raising these benefits and offering hints to groups 1 and 2, if necessary, until these two groups vote together to defeat group 5, or until group 5 does not vote and either group 1 or 2 does vote to win the election. Make the appropriate payoffs and collect the $4 from voters in each election you hold. Record the result that option B defeats option A on the chalkboard or overhead transparency.

(Optional) Election 3: Special Interest Effects, Continued

6. Collect the information sheets used in elections 1 and 2, and distribute the new information sheets from Activity Sheet 2. Once again make sure students receive information only about their own benefits from options A and B, not about the benefits for other students or groups. Announce that you will ***NOT*** charge students for voting in this election, as you did in election 2. Conduct Election 3, after making sure that students understand all of the procedures for this election, and that they are still to vote in their own best interest. Make the payoffs shown on the students' information sheets, and on Visual 3. Record the result (option A should defeat option B) on the chalkboard or overhead transparency.

Debriefing: Elections 1-3

7. Debrief Elections 1-3. Suggested guidelines for the debriefing follow:

(Election 1: When everyone votes their own self-interest option A defeats option B by a vote of 3 to 2, because students/groups 3, 4, and 5 vote for A, and students/groups 1 and 2 vote for B. In this case total social benefits of $11—$5 for group 5 and $3 each for groups 3 and 4—are chosen over total social benefits of $10, which would be paid out to groups 1 and 2 if option B won. Pass out a copy of the table on Visual 1 to all students, or show it on an overhead transparency. Ask students to calculate the best choice for each group. Make sure they understand why option A will prevail, as long as people vote in their own self-interest and equal numbers of voters are in each of the five groups.

Election 2: Referring again to the table from Visual 1, explain that in this case option B defeats option A when groups 3 and 4 choose not to vote, despite the fact that a majority of people would prefer that option A win if they did not face any costs in voting. Ideally this will happen in the first election you hold, but perhaps only on the second or third round.

Choosing B over A illustrates the special interest effect—differences in the distribution of costs or benefits associated with an election outcome give small groups of people strong incentives to organize, campaign, and vote, while a majority of the electorate chooses not to vote, or at least not to vote as a bloc for or against some candidate or issue. Although direct monetary costs of voting were used in this simulated election, point out that such poll taxes are not legal in U.S. elections. However, people do incur both time and money costs in getting to the voting place, and to different degrees in getting the information to make an informed vote (as demonstrated later, in Election 4). These costs have the same effect in leading some people not to vote as the $4 charges used in this simulated election.

Discuss examples where the special interest effect is at work in U.S. elections or other public policies—e.g., farm subsidies despite the fact that only 3% of the population works on farms; or trade protection in the form of tariffs, quotas, and voluntary export restraints provided to U.S. automobile and textile companies. Also discuss cases where voters or political leaders took a position that was not in their own self-interest—e.g., defenders at the Alamo, President Eisenhower signing the amendment limiting presidential terms, or see John F. Kennedy's chapter on John Quincy Adams in Profiles in Courage.

Explain that public choice economics assumes people follow their self-interest in making political decisions, and to the extent that they do not, that represents a limitation of the abil-

ity of public choice theory to predict the behavior of individuals and groups. You may have encountered that sort of behavior in Election 2, if some students choose to vote despite the fact that the voting costs are higher than their expected gains. Discuss that in the debriefing, if it occurs, and note what percentage of these people did follow their own self-interest. Then allow the students to use the currency they have acquired in the activity to purchase products or classroom privileges that you can make available for them.

With the benefit schedule used in Visual 2 and on the student information sheets, if there were no voting costs the democratic procedure of majority rule would result in choosing the option with the highest social benefits. However, that is not always true. If you want to provide a classroom example to show a case where it is not, conduct the optional third election.

Optional Election 3: Option A will be elected, as in election 1, but now the total benefits of that choice are $11 while the benefits of Option B are $20. Assuming the benefits to groups 1 and 2 are based on legitimate activities and not something illicit—such as rigging awards of government contracts—in this case the democratic procedure of majority rule fails to maximize overall economic welfare unless the special-interest effect can prevail, perhaps as a result of voting costs, as shown earlier in election 2, or as a result of compensation provided by groups 1 and 2 to groups 3, 4, or 5 to change the election outcome, which could be illegal in many situations.)

Election 4: Voting Costs and "Rational Ignorance." Procedures 8-11.

8. Give each student a copy of a ballot or part of the ballot from a recent or forthcoming national, state, or local election held in your community. Keep a total of approximately eight candidates or issues on the classroom version of the ballot. Ideally, some of the candidates and issues will be well known to the students, and the rest rather obscure.

9. Randomly assign half of the class (designated group A) to collect information about the first half of candidates or issues listed on your ballot, and have the other half of the class (group B) collect information about the remaining candidates and issues. Each student should turn in a brief report on the candidates or issues he or she was assigned to study. [Or, if you prefer, prepare and distribute to group A a fact sheet on the first half of the candidates/issues, and provide a similar fact sheet to group B on the second half of the candidates/issues.] Do ***NOT*** have the students share their reports [or fact sheets] with other class members.

10. Conduct a secret ballot election on the candidates or issues. Have each student indicate on the ballot which group (A or B) he or she was in. Tabulate the overall results *and* the results for each group, and note whether there were differences related to the information that each of the two groups had collected or made available to them. Did group A vote differently on the candidates/issues they had information about, compared to group B? Did group B vote differently from group A on the candidates/issues where they had more information than group A?

Debriefing: Election 4

11. Debrief election 4. Suggestions for the debriefing follow:

(If there were no differences in the voting patterns discuss why—perhaps the candidates' positions were really not very different, or students voted for or against someone because of their looks or party affiliation. If there were differences, discuss how much information most people who vote have about the issues and candidates in elections.

Except in races that receive extensive media coverage, or those held in very small communities where everybody knows everybody else, most voters are not well informed. Even in elections that receive extensive coverage in the media, the coverage is often superficial and not well remembered by many voters. Point out that collecting and using this kind of information is costly, and that these costs, plus the costs of taking time off work or away from other activities, locating and getting to the polling place, and waiting in line to vote, are

in fact the kind of voting costs most voters pay—not the monetary poll tax that was collected in Election 2.

The information, time, and transportation costs discussed in this activity will, however, have the same kinds of effects seen in Election 2, in terms of keeping many people away from the polls entirely. They will also cause many voters to cast votes on issues or candidates they have not studied in any depth. When people stand to gain a great deal from electing or defeating a particular candidate, or from passing or defeating some referendum, they are much more likely to acquire information and work hard to make sure the election turns out the way they want it to. If the candidate or proposal is expected to have little or no effect on them, they are much more likely to be "rationally ignorant," opening the door for special interest groups to decide the election outcome.

Finally, note that the chances of an individual vote influencing the outcome of an election are directly related to the number of people who vote in it. Therefore, as the number of voters increases, the costs of voting, such as waiting in line, increase while the expected benefits of your vote, in terms of changing the election outcome, decrease. For that reason, unless the act of voting itself gives someone direct satisfaction, we expect higher voter turnouts in small, local elections—such as the old New England town meetings—than in statewide or national elections, assuming that the levels of controversy, interest, and expected closeness in election results are comparable.)

Election 5: Logrolling[1]

12. Divide the class into groups of four to six students, and distribute copies of the table in Visual 3 as a handout, or display it on an overhead for the entire class to see. Tell the students to assume that all of the relevant costs and benefits of these programs are included in the numbers shown in the table. Have each group answer the discussion questions listed below the table, and then conduct a classroom discussion of their answers, paying special attention to question 3.

Debriefing: Election 5

13. Debrief Election 5. Suggestions for the debriefing follow:

(This activity simulates a Senatorial committee or subcommittee vote and negotiation process. Neither the defense contract nor the farm subsidy program is efficient, since the costs for both are $60 billion and the benefits are only $50 billion. A straightforward majority vote will result in both programs being defeated if the Senators vote based strictly on what is best for their own constituents, because the costs are greater than the benefits for both programs for the constituents of two of the three Senators. Specifically, the Midwestern and Western Senators would both vote against the defense contract, and the Eastern and Western Senators would vote against the farm subsidies. Make sure students are interpreting the information on the visual correctly, in terms of the expected benefits from the different election outcomes.

Then show that the Eastern Senator might approach the Midwestern Senator and offer to vote for the farm subsidy program if, and only if, the Midwestern Senator agrees to vote for the defense contract. Or the Midwestern Senator might propose the same arrangement to the Eastern Senator. If that happens, the benefits to the constituents in both the East and the Midwest will be $45 billion, and the costs $40 billion.

This "logrolling"—also known as "You scratch my back and I'll scratch yours"—could lead to both programs passing, despite the fact that the total costs are greater than the total benefits for both of them.

The Western Senator can try to call attention to the "back room deals" and "pork barrel" politics, to try to defeat the programs when a vote is taken in the full Senate. Or, she can try to find a project that will benefit people in her district, and "trade" her vote in support of one or both of these projects in return for the Eastern and/or Midwestern Senators' votes. And so the log rolls on.)

[1]Developed by Jeffrey Blais and Raymond J. Pouliot, and originally published in *The Senior Economist* by the National Council on Economic Education, 1992.

CLOSURE

Explain that many factors, including special interest effects, voting costs that lead many people not to vote in elections, information costs that lead most voters to be rationally ignorant about at least some of the things they vote on, logrolling by elected officials, and other kinds of problems identified by public choice economists—all stemming from the fact that voters, elected officials, and government employees often pursue their own self-interests—can lead to systematic inefficiencies in government policies and programs. That doesn't mean there is no economic role for the government to play in a market economy. (Remind students of market failures and Lessons 12 and 13 from this volume, if you used them.) But it does add large costs to many kinds of government programs, and in that sense supports the idea of a limited role for government in a democratic market system.

ASSESSMENT

Have students study the economic policies and proposals put forward by real candidates or as referendum items in a recent or imminent election, and then study the election results. The most recent presidential election is often best to use, given the extensive media coverage and post-election analysis that is available to students. Have students discuss, formally debate, or write a short paper on the following statement: "In this election, the behavior of 1) candidates, 2) groups endorsing particular candidates or a particular vote on a referendum item, and 3) voters, was more consistent with the idea of people following their own self-interest than with the outdated idea that elections are a way for people to do their civic duty and promote the public good."

ACTIVITY 1
STUDENT INFORMATION SHEETS FOR ELECTION 1

GROUP 1

If option A is elected, you will receive $0.

If option B is elected, you will receive $5.

GROUP 2

If option A is elected, you will receive $0.

If option B is elected, you will receive $5.

GROUP 3

If option A is elected, you will receive $3.

If option B is elected, you will receive $0.

GROUP 4

If option A is elected, you will receive $3.

If option B is elected, you will receive $0.

GROUP 5

If option A is elected, you will receive $5.

If option B is elected, you will receive $0.

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ACTIVITY 2
STUDENT INFORMATION SHEETS FOR ELECTION 3

GROUP 1

If option A is elected, you will receive $0.

If option B is elected, you will receive $10.

GROUP 2

If option A is elected, you will receive $0.

If option B is elected, you will receive $10.

GROUP 3

If option A is elected, you will receive $3.

If option B is elected, you will receive $0.

GROUP 4

If option A is elected, you will receive $3.

If option B is elected, you will receive $0.

GROUP 5

If option A is elected, you will receive $5.

If option B is elected, you will receive $0.

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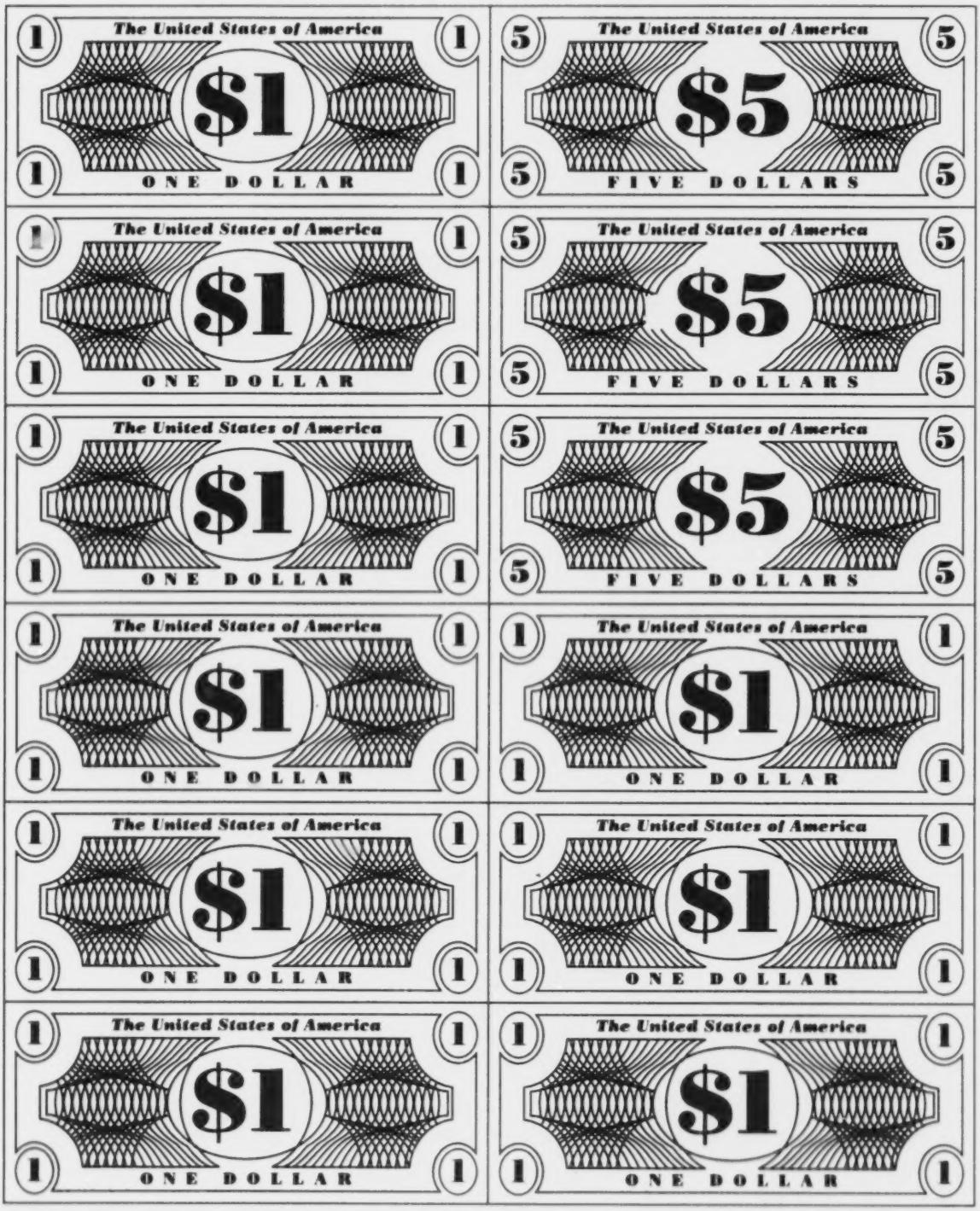
PLAY MONEY


The United States of America
$1
ONE DOLLAR
The United States of America
$5
FIVE DOLLARS

APPENDIX
BACKGROUND MATERIAL ON PUBLIC CHOICE ECONOMICS

Many people and writers have long adopted a cynical view of government and the political process. For example, some of Dickens' characters come to mind, as does Henry Adams' novel, *Democracy*, Joseph Heller's *Good as Gold*, and historian Charles Beard's famous work, *An Economic Interpretation of the Constitution*.

What is really different about public choice economics is the rigorous study of how people in the public sector systematically respond to the economic incentives they face. Admittedly, that still seems like a very simple idea. In fact, when the idea was summarized in the press after James Buchanan's Nobel prize was awarded, many people wondered how such a simple idea could merit such a prestigious award. The answer is that while the basic idea is very simple, it is often difficult and complex to trace out the many different ways the idea shows up in real world settings. That is especially true since allegations of self-interested behavior by public officials are frequently denied and the evidence of such behavior is normally covered up by those who want to keep it hidden from the electorate.

Self-interest is a very powerful idea, however, and can lead to surprising insights when used by economists as skilled as Buchanan. He and other public choice economists, and some political scientists, used it to identify many additional concepts and issues, such as special-interest effects, "rational ignorance" on the part of voters, declining voter registration and turnout levels, inconsistencies in election results and voter preferences, the importance of controlling agendas when inconsistent outcomes are possible, models of how candidates try to package themselves to be most successful in various elections, and how they bargain to get the things they want once they are elected. Taken together, all of these ideas build up to a theory of "government failure" that often parallels economists' work on market failures, when problems such as public goods and externalities occur. (Lessons 12 and 13 deal with market failures.)

Government policies are often suggested as ways to deal with market failures, so the idea of systematic government failure raises a fundamental question: Can we really depend on government actions to correct for market failures? Economists' answer to that question is a firm "It all depends." It depends on whether the expected benefits of a policy are greater than the expected costs. Public choice models show that those costs must include regular and often substantial provisions for government failures. They also force us to recognize that the very reasons markets fail to provide the right amount of certain goods and services are often likely to make it difficult for the government to determine and implement the right policies to deal with those same goods and services.

Public choice models therefore provide a modern argument for maintaining a limited role of government in a market economy on the one hand, while encouraging searches for legal and constitutional arrangements to limit some kinds of government failure on the other. Debates over constitutional amendments imposing term limits and requiring a federal balanced budget are often promoted on these grounds; but of course there is a great deal of debate about the economic and political desirability of such reforms.

Longer treatments of public choice economics can be found in most college principles of economics textbooks, particularly those written by James Gwartney and Richard Stroup (*Economics: Private and Public Choice*, 6th ed., Dryden Press, 1992), Robert Ekelund and Robert Tollison (*Economics*, 3rd ed., Harper Collins, 1991), or see David Johnson's *Public Choice: An Introduction to the New Political Economy*, Mayfield Publishing Company, 1991.

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VISUAL 1

Group #	Benefits of Electing Option A	Option B
1	$ 0	$ 5
2	0	5
3	3	0
4	3	0
5	5	0

1. **What are the total benefits if Option A is chosen?**

2. **What are the total benefits if Option B is chosen?**

3. **If each of the five groups has the same number of voters, will Option A or Option B be chosen?**

VISUAL 2

Group #	Benefits of Electing Option A	Option B
1	$ 0	$ 10
2	0	10
3	3	0
4	3	0
5	5	0

1. **What are the total benefits if Option A is chosen?**

2. **What are the total benefits if Option B is chosen?**

3. **If each of the five groups has the same number of voters, will Option A or Option B be chosen?**

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VISUAL 3

(Dollar values in billions)

	Programs			
	1) Defense Contract		2) Farm Subsidies	
	Benefits to Constituents	Costs to Constituents	Benefits to Constituents	Costs to Constituents
Voter:				
Eastern Senator	$ 40	$ 20	$ 5	$ 20
Midwestern Senator	5	20	40	20
Western Senator	5	20	5	20

1. **Which of these programs is economically efficient (total benefits exceed total costs)?**

2. **If majority voting is used and only these three Senators vote (perhaps on a Senate subcommittee), which of these programs will be approved?**

3. **If you were the Eastern Senator, what could you do to try to get one of the other Senators to vote for the defense contract?**

4. **What role does the Western Senator play in this election?**

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LESSON FIFTEEN
WHEN THERE ISN'T PURE COMPETITION

INTRODUCTION

Most markets do not fit the assumptions of perfect competition: many sellers selling identical products in a market that is relatively easy to enter and exit. Imperfectly competitive markets can differ from perfect competition in terms of one or more of these factors, and in varying degrees. In most markets, products are *not* identical, but there may be several close substitutes. Many markets are not easy to enter because of high capital costs and the difficulty of competing with established producers selling well-known, heavily advertised brands. And many important markets are characterized by a few large sellers rather than many small ones. For example, among the U.S. producers of such products as motor vehicles, chewing gum, cigarettes, typewriters, photocopying equipment, and sewing machines, the four largest firms account for more than three-fourths of the total industry sales to U.S. firms. In many local markets, there are sometimes only a few competing firms even when there are more firms competing at the national or regional level. For example, even though there may be many sellers of gasoline in a large city, vigorous competition may exist only between a few sellers in a specific neighborhood. Therefore, it is important for students to understand the following characteristics and consequences of imperfectly competitive markets:

1. Firms in imperfectly competitive markets are often interdependent, with the actions of one firm greatly affecting business conditions for its competitors.

2. Large firms competing with other large firms often try to avoid direct price competition, because of the uncertainty concerning how their competitors will react, and a joint interest in keeping prices above the level that would prevail in perfect competition.

3. Both large and small firms in imperfectly competitive markets emphasize nonprice competition, especially advertising that stresses real or imagined differences in goods and services provided to customers.

4. In markets dominated by a few large firms, there are strong pressures supporting price collusion, although the collusion must often be tacit rather than explicit in countries such as the United States, where such price fixing is illegal.

In general, competition among many small firms producing identical products is desirable because it results in lower prices for consumers and a more efficient use of scarce resources. Imperfect competition typically leads to restricted output and higher prices. But sometimes these negative results are offset because large firms are able to take advantage of economies of scale, which lower production costs and prices. And there is clear evidence that consumers like the greater variety of product styles and features that are associated with some degree of imperfect competition, rather than the identical products associated with economists' models of perfect competition.

Evaluating any specific imperfectly competitive market involves a careful weighing of these costs and benefits. Public policy should undoubtedly be directed toward eliminating extreme concentrations of market power and flagrant cases of collusive behavior in order to maintain an effective degree of competition. But such policies should stop far short of breaking up large firms just because a market isn't perfectly competitive.

CONCEPTS

Competition and market structure
Interdependence in imperfect markets
Nonprice competition
Collusion in imperfect markets
Imperfect markets and public policy

CONTENT STANDARDS

The level of competition in a market is largely determined by the number of buyers and sellers in the market.

Active competition among sellers usually results in lower prices and profit levels.

Collusion among buyers or sellers reduces the level of competition in a market. Collusion is more difficult in markets with large numbers of buyers and sellers.

The level of competition in an industry is, in the long run, determined largely by how difficult and expensive it is for new firms to enter the market.

OBJECTIVES

◆ Define perfectly competitive and imperfectly competitive markets

◆ Evaluate the role of nonprice competition in imperfect markets

◆ Explain the tendency toward price collusion in imperfectly competitive markets

◆ Assess government's role in dealing with imperfectly competitive markets

LESSON DESCRIPTION

A series of worksheets are used to explore: 1) demand and pricing decisions facing imperfectly competitive firms, 2) interdependence in situations where actions by one firm have a large effect on the remaining competitors in a market, 3) the tendency for firms with formal or informal pricing agreements to go through phases of colluding and then cheating on the collusive agreement, and 4) public policy decisions over mergers when it is not clear whether a merger will result in more or less effective competition in an already concentrated industry. Students also conduct a survey on brand loyalty and pricing issues in the market for blue jeans.

TIME REQUIRED

Three class periods. Day one—procedures 1-5 (activity four will be completed and discussed a day or two later). Day 2—procedures 6 and 7. Day 3—procedures 8-11 and Assessment.

MATERIALS

★ Copy of Activity 1 for each student
■ Copy of Activity 2 for each student
★ Copy of Activities 3-6 for each student

PROCEDURE

1. Distribute a copy of Activity 1 to each student. After discussing the major characteristics of perfectly and imperfectly competitive markets, ask the students to complete the activity sheet. Recommended answers include:

A. Wheat farmer. Agricultural products are probably the best example of a perfectly competitive market (except for the presence of government price controls—see Lesson Six). If you raise your price above the market price, your sales will be zero because wheat buyers can buy the identical product at the market price from any one of many other sellers. If you lower your price, your sales will not increase. You can sell all you want at the market price, so it doesn't make sense to lower your price below the market price.

B. Local electric company. This is an example of a natural monopoly, the most extreme form of an imperfectly competitive market. The product has no close substitutes, and there is only one seller in the market. If you increase your price your sales will fall, but quite possibly very little because the demand for electricity is inelastic. Similarly, if you lower your price, your sales will increase only slightly. (See Lesson Seven on elasticity of demand.)

C. U.S. automobile manufacturer. This is an example of an oligopolistic market with a few large sellers. These markets are characterized by a high degree of interdependence. If you raise your price you may well lose a lot of sales if your competitors do not follow your increase, because most people consider different brands of cars to be close substitutes. If you lower your price you might capture a lot of your competitors' sales, *if* they do not also lower their prices. But they are likely to match your price decreases, at least in many cases. You can't be sure what will happen if you raise or lower your price, because the results depend upon what other sellers do.

D. Flower shop. This is similar to the above example in that the products of different sellers are close substitutes. But there are many more shops and stores where people can buy flowers in most cities and towns than there are U.S. automobile manufacturers. This type of imperfect market is called monopolistic competition. In general, if you raise your price you will lose some sales, and if you lower your price you will gain some sales. But the actual results will depend upon how many sellers are in the market, the extent to which consumers consider the products and support services of the competing shops to be good substitutes, and how sensitive customers are to the price changes, since flowers are a small part of most consumers' budgets.

2. Briefly discuss why firms in imperfectly competitive markets must make price and output decisions under conditions of great uncertainty. Then tell the class that you are going to demonstrate such uncertainty in decision making with a simulation that may, at first, seem to have little to do with economics.

3. Distribute copies of Activity 2, "The Prisoners' Dilemma." After the students have read the activity, review the payoffs facing both prisoners carefully, to make sure that students understand them.

4. Ask the students to answer questions 1 through 4 and then discuss their answers. (A student who says "I would not confess and just take the one year in jail" probably doesn't understand the dilemma. Individually, confessing is the best solution—offering the shortest jail term—*regardless* of what the other crook does. But together, the total amount of jail time saved will be minimized if neither crook confesses. What happens to each of them depends upon what the other person does. If Curly or Moe aren't sure that the other person will confess, it might be best to confess because that choice results in "the best of the worst" that can happen—five years is the worst possible result for a confessor while ten years is the worst possible result for a nonconfessor. Curly and Moe should not confess *only* if they are absolutely certain that the other person will not confess, or if they are afraid that the other person will be able to retaliate if they do confess. And remember, they both start out knowing that the other person is a crook!

Recommended answers include:

A1. Curly should confess because he will go to jail for 10 years if he doesn't and only five years if he does.

A2. Curly should confess because he will go to jail for one year if he doesn't and only three months if he does.

B. The answers for Moe are the same as for Curly.

C. Curly and Moe have to weigh the possible jail terms (three months, one year, five years, or 10 years) with respect to what they think the *chances* are that their partner will confess. Curly and Moe might consider the following possibilities:

1. Confess, because the worst that can happen to a partner who confesses is a five-year term, while the worst that can happen to a non-confessor is a 10-year term.

2. Don't confess, because if you confess and your partner doesn't, you may find that your partner or some of his other business associates are going to commit violent acts on various parts of your body, or against your family.

3. Each of the partners should not confess if they are absolutely certain that the other partner won't confess, or if they deeply fear retaliation from the other partner if they do.

5. Distribute copies of Activity 3. This activity will reinforce students' understanding of the interdependence of firms in imperfectly competitive markets.

Recommended answers include:

A. No. Mac is correct that the overall demand

for gasoline is relatively inelastic, but if he raises the price at his station and Charlie doesn't, he will lose a lot of sales.

B. No. Charlie is correct that he would draw business from Mac *only* if Mac doesn't lower his price, too. In fact, Mac may lower his price even more than Charlie does. They are both likely to wind up selling a little more gasoline at a lower price, and making lower profits.

C. They might try to capture more sales by advertising or by providing better service, clean restrooms, and free coffee, maps, or other "giveaways." These strategies are also costly, however, and can be matched by their competitors.

Strictly from the viewpoint of Mac and Charlie, the best solution is to enter into an agreement to charge the same, relatively high price (although the threat of others building new gas stations in the town and the price of gas at the next stations along the interstate also limit the price they can charge). A mutual price agreement takes advantage of the fact that demand for gasoline is relatively inelastic, and lowers the risk of a competitor charging a lower price. Fortunately for consumers, such collusive agreements are illegal in the U.S. However, they can be difficult to identify when the agreement is simply a tacit understanding.

In reviewing this activity, stress that prices in most imperfectly competitive markets are "sticky," and change infrequently. One reason for this is the great uncertainty created by the interdependence between competitors. In other cases, it isn't practical to change prices very often. For example, catalogs with price information may have to be printed and distributed every time prices change, and that is expensive.

6. Introduce Activity 4 by asking some questions about jeans: "How many brands of jeans are there?" "Do TV commercials or magazine ads have much influence on what brand of jeans people buy?" "Are brand-name jeans really worth the extra cost?"

7. Distribute a copy of Activity 4 to each student. The activity uses jeans to demonstrate the emphasis on nonprice competition in imperfectly competitive markets, but other products could serve as well.

Tell the students to write down the names of each of the different brands of blue jeans they see at school in one day, and to conduct a survey of five other students' attitudes about the different brands of blue jeans. Record their answers on the activity sheet and report the results in the class discussion.

You may also want to have one group of students collect price information about different brands of jeans. Another group could investigate and report on commercials and ads for jeans. A third group could develop a more detailed survey on brand loyalties for jeans or other products. In reviewing this activity, stress that the stakes are very high in national markets for highly advertised products such as jeans, athletic shoes, soft drinks, beer, automobiles, etc. Nonprice competition in these markets is often stressed to limit direct price competition.

8. Distribute a copy of Activity 5 to each student. This activity can be conducted by giving a decision sheet to each student, or the class could be divided into ten groups of two or three students each, to make the decisions called for. The table shows clearly that what happens to a firm's profits depends upon what other firms in the industry do, and that firms have a strong incentive to collude, and then to cheat on each other.

9. Ask the students to read Activity 5 and, *without talking to other students*, to decide whether to adopt the price increase.

10. Collect the copies of Activity 5 and count the number of yes and no responses. Announce the results. (If more than 10 sheets are counted, the results can be interpolated from the data on Activity 5: if half the students raise the price, the results will be as shown for five firms; if 70% raise the price, the result will be as shown for seven firms, etc.) In reviewing this activity, stress that collusion can definitely benefit sellers in imperfect

markets, but it is difficult to maintain collusive agreements. A discussion of OPEC's problems in setting prices and maintaining production quotas can be used to illustrate these points.

11. Distribute copies of Activity 6 to illustrate public policy concerns relating to imperfectly competitive markets. The purpose of the case study is to have students understand that many antitrust policy decisions are not clear-cut. Have the students read the case study and then write answers to the questions. Discuss the answers with the students. Then ask some students for their recommendations on the case.

Discussions of the questions could involve the following:

A. The airline industry is an imperfectly competitive market, and the actions of one seller very much affect others in the market.

B. Company recognition and loyalty associated with high advertising costs and long-term safety and performance records are significant barriers to entry, as are high purchase and operating costs for airplanes, labor costs for highly skilled workers (pilots, mechanics, etc.), and international ticketing and reservations systems.

C. In general, owners of resources in a market economy are free to use these resources in whatever manner they choose. However, an important economic function of government in a market economy is to maintain competition. Therefore, the government limits property rights in certain circumstances, including prohibiting mergers of large firms in some highly concentrated industries.

D. Often, the more firms in a market, the greater will be the degree of competition, which will result in lower prices and increased output. Many markets, however, are inherently imperfect; and big doesn't always mean bad if large-scale operations are required to minimize production costs. That is especially true if it is easy for some competitors to enter markets where economic profits are being earned, and airlines can often reroute their planes to different cities quite easily (unless gate space at airports is unavailable).

This case is certainly not clear-cut. A major point of difference among those evaluating this situation will be whether they believe the two companies can survive without merging. Another major point is that the two airlines are now generally serving different markets/cities.

ASSESSMENT

Ask students to evaluate the following statement in a one- or two-page essay:

"Most progress in the last century occurred in markets that are, or were, imperfectly competitive, not perfectly competitive. That progress included developing new products and lower prices for established products. We would be better off if the government quit trying to keep markets so competitive, and let them become oligopolies or even monopolies if that's what happens in the marketplace. That's what other countries are doing already, and look how successfully their companies have been competing with U.S. firms in recent decades."

ACTIVITY 1
PERFECTLY AND IMPERFECTLY COMPETITIVE MARKETS

Name _____

A perfectly competitive market is one in which many sellers sell identical products in a market that is relatively easy to enter and leave. In these markets, sellers have no control over the price of their products. They have to accept the market price and they can sell as much or as little as they want at that price.

If these conditions do not exist, the market is said to be imperfectly competitive. There are several possible kinds of imperfectly competitive markets depending upon: 1) the number of sellers, 2) the types of products produced (especially the availability of close substitutes), and 3) whether the market is easy to enter.

Considering these characteristics of perfectly and imperfectly competitive markets, imagine that you are a seller in each of the following markets. Explain what you think would happen to your sales levels if you raised or lowered the price of your product. Specifically, how much do you think sales would change, and why?

A. Wheat farmer

Increase your price

Decrease your price

B. Local electric company

Increase your price

Decrease your price

C. U.S. automobile manufacturer

Increase your price

Decrease your price

D. Flower shop

Increase your price

Decrease your price

ACTIVITY 2
THE PRISONERS' DILEMMA

Name _____

Curly and Moe are crooks. They have been caught stealing auto parts and are now sitting in separate rooms in the city jail. The District Attorney is delighted to have finally caught Curly and Moe in the act of committing a crime. The DA knows that Curly and Moe are guilty, and not only of this crime, but also of a large number of burglaries that have occurred during the past year. She *knows* they are guilty of these crimes, but she can't prove it in court.

The DA decides to try to persuade Curly and/or Moe to confess by offering them a deal. She talks to each one separately and says: "I have enough on both of you to send you to jail for a year. But if you alone confess to the other robberies, which carry a 10-year sentence, you will get off with three months and only your partner will serve 10 years. If you both confess to the other robberies, you will both get five years."

Don't worry here about whether the constitutional rights of Curly and Moe are being violated, or whether they would actually serve these exact sentences if convicted. Those are interesting and important issues, but they can be dealt with in another activity or course. For now, accept the four following propositions:

1. If Curly confesses and Moe doesn't, Curly goes to jail for three months and Moe for ten years.
2. If Moe confesses and Curly doesn't, Moe goes to jail for three months and Curly for ten years.
3. If both Curly and Moe confess, they both go to jail for five years.
4. If neither Curly nor Moe confess, they both go to jail for one year.

Given those results, answer the following questions:

A. 1. What would you do if you were Curly and you expected Moe to confess? Why?

2. What would you do if you were Curly and you expected Moe not to confess? Why?

B. 1. What would you do if you were Moe and you expected Curly to confess? Why?

2. What would you do if you were Moe and you expected Curly not to confess? Why?

C. What would you do if you were Curly or Moe and you weren't sure whether your partner would confess or not? Why?

D. Under what circumstances would Curly and Moe not confess?

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ACTIVITY 3
DUELING GAS STATIONS

Name _____

Mac and Charlie each own and operate gasoline stations across the street from each other on the edge of town, near an interstate highway. There are no other service stations in this town. They are now selling their gasoline for exactly the same price and they both have large signs listing their price.

A. Mac is considering raising his price because he thinks that people will buy about the same amount of gasoline even if the price is raised a little. He figures that he can more than make up for the few sales he will lose with the higher price for the sales he makes. Would you advise Mac to do this? Explain your answer.

B. Charlie is considering lowering his price because he thinks that he can steal business from Mac if his price is a little lower. He figures that he can more than make up for the small decrease in revenue from each gallon sold by selling a lot more gallons. Would you advise Charlie to do this? Explain your answer.

C. Can you think of any other actions that Mac and Charlie might take to increase the profitability of their businesses?

ACTIVITY 4
THE JEANS GAME

Name _____

In one day, identify as many different brands of jeans as you can that people are wearing at your school. Ask five students the three questions in section II and record their answers to use in your class discussion of the market for jeans.

I. Brands of Jeans Identified:

_____ _____

_____ _____

_____ _____

_____ _____

II. Student Survey Form

1. How many pairs of jeans do you normally buy in one year? _____
2. Which brand(s) do you prefer? Why? _____

   _____
3. What is your response to the following statement?

   "Name-brand jeans are terribly overpriced. The only reason so many people buy them is they are worried about what other people will think if they don't buy the well-known brands. The generic brands of jeans are really just as good."

   _____

   _____

   _____

   _____

   _____

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ACTIVITY 5
WE'RE ALL IN THIS TOGETHER, AREN'T WE?

Name _____

Imagine that you represent one of the 10 major soft-drink companies in the nation, and that you are meeting together at the annual convention of the American Soda Pop Association. During an afternoon meeting an association economist presents evidence showing that, at current prices, the demand for all soft drinks (not one particular brand) is inelastic. This means that if prices are lowered, consumers will buy more soft drinks, but the increase in sales will be relatively small. If prices are raised, consumers will buy fewer soft drinks, but the decrease in units sold will be relatively small. The economist presents evidence showing that if each of the 10 companies increases its price 20 percent, each company's profits would increase 15 percent, because each company would sell a little less than now, but at higher prices. An off-the-record motion is made (after all, you wouldn't want the Justice Department to learn about illegal price fixing) that each firm will raise prices by 20 percent. The motion passes unanimously.

Returning to your office, you must decide whether to send out a memo announcing a price increase. Having had some training in economics, you realize that the effect of a price increase on your profits depends on how many other firms really go along with the price increase.

The following table shows the change in your profits under the different possible outcomes. Under these circumstances, would you raise your price?

Number of firms raising price	Number of firms not raising prices	Percent change in profits for firms raising price	Percent change in profits for firms not raising price
10	0	+15	—
9	1	+12	+100
8	2	+9	+75
7	3	+6	+50
6	4	+2	+30
5	5	0	+18
4	6	-5	+10
3	7	-15	+6
2	8	-30	+4
1	9	-50	+2
0	10	—	0

_____ Yes, I would raise the price of my product.
_____ No, I would not raise the price of my product.

Explain your decision. _____

ACTIVITY 6
THE AIRLINES CASE: IS BIG BETTER?

Name _____

Imagine that it is 10 years from now and you have been hired as a consulting economist for the Antitrust Division of the Department of Justice. The following case is given to you for review. Use what you know about markets and the information in the case to suggest a policy to the assistant attorney general in charge of antitrust actions.

Two relatively new airline companies, Gigantic Airways and Nationwide Airlines, have announced plans to merge. The following table shows the leading airline companies and their respective shares of total U.S. ticket sales over the past year.

United	17%
American	15%
Delta	14%
Gigantic	11%
U.S. Air	10%
Nationwide	9%
Southwest	8%
All others	16%

During the past five years, the airline industry has become more concentrated as smaller airlines have gone out of business or merged with larger companies. Note that the four largest airlines now account for 57 percent of total sales.

Arguments: Some staff attorneys at the Justice Department believe the merger should be opposed. They think the merger of the fourth and sixth largest airlines will continue what they regard as an unhealthy trend toward larger airlines, a higher concentration of sales, and less competition. The newly merged airline will be the largest in the nation, with substantially more sales than the leading airline now has. Aggressive advertising campaigns by the large airlines are creating significant barriers to the entry for potential new competitors.

Attorneys for the companies involved have filed papers arguing that the merger would not materially affect competition in the industry. Most of Gigantic Airlines' business consists of coast-to-coast flights using very large aircraft. Nationwide Airlines specializes in shorter flights using smaller planes and the hub concept. Only four cities are now served by both airlines. Furthermore, the attorneys argue that neither airline can survive in the long run without the merger, due to heavy competition from the largest airlines in the industry today. The merged company would have a larger advertising budget and could realize substantial economies in their reservations and ticket sales operations. The company attorneys state that if either of these two companies fail, the lost sales will probably go primarily to the largest three airlines, and thus concentrate the market to an even greater extent. The attorneys argue that one strong competitor is better than two smaller companies going out of business.

Question: Should the Justice Department announce that it will oppose the merger? What is your recommendation? Explain your position.

_____ Support the merger.

_____ Oppose the merger.

Why? _____

_____

_____

_____

_____

_____

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LESSON SIXTEEN
UNTIL THE LAST UNIT EQUALS...

INTRODUCTION

Marginalism is an important concept in both personal and social decision making. Choices are rarely all-or-nothing propositions, but instead usually deal with incremental (marginal) changes—giving up a little of one thing to get a little more of something else. Should a firm produce a few more or a few less units of output? Should a consumer buy a bit more of this and a bit less of that? Are the additional revenues generated by hiring another worker equal to or greater than the additional cost? Should the government increase taxes to hire a few more teachers so class sizes can be lowered by three to five students? All of these decisions are made "at the margin"—with clear marginal costs and marginal benefits to be compared. And surprisingly, comparing marginal benefits and costs turns out to be an effective and relatively easy way to maximize a consumer's total level of satisfaction, or a business' level of total profits, or the net benefits of a government program or policy.

Nevertheless, the marginalist way of thinking isn't widely taught or appreciated, and it takes some practice to master. In fact, although marginalism is now one of the cornerstones of economic analysis and the economic way of thinking, not even economists understood the approach until the late nineteenth century, more than a century after the development of economics as a formal and separate discipline.

CONCEPTS

Marginalism
Diminishing returns
Marginal product
Marginal cost
Supply

CONTENT STANDARDS

Few choices are all-or-nothing propositions; they usually involve trade-offs—for example, getting a little more of one option in exchange for a little less of something else.

To maximize total satisfaction, profits, or economic welfare, consumers, producers, and public policy makers should expand an activity or program as long as the marginal benefits exceed the marginal costs, up to the point where they are equal.

The short-run supply curve shows a direct, or positive, relationship between price and quantity supplied because of the law of diminishing returns.

As more units of a variable input are added to one or more fixed inputs, eventually the number of additional units of output produced will begin to fall. This is known as the law of diminishing returns, and it occurs because the fixed input is spread more and more thinly across the growing number of variable inputs.

OBJECTIVES

◆ Apply marginal analysis in economic decision making.

◆ Explain the law of diminishing returns and its relationship to the law of supply.

MATERIALS

Play money—six $5 bills and twelve $1 bills.
A large supply of 8 ½" by 11" scrap paper.
One blue pen and one red pen.
Masking tape.
One student desk or small table, approximately 18" by 24."
★ A transparency and one copy of Activity 1 for each student.
★ One copy of Activities 2 and 3 for each student.

LESSON DESCRIPTION

Students participate in a role-playing activity to see that profits are increased (or losses reduced) by engaging in any exchange for which marginal revenue is greater than marginal cost, and avoiding trades whenever marginal cost is greater than marginal revenue. Then they participate in a simulation producing glove patterns, and use marginal analysis to decide what number of workers to

★ all students–basic course material
■ average and above average students

hire to maximize profits (or minimize losses). Finally, they use marginal analysis to discuss whether they will be hired for a summer job.

TIME REQUIRED

One-and-a-half class periods. First half day—procedures 1-5. Day two—procedures 6-22 and Assessment.

PROCEDURE

1. Explain that the purpose of this lesson is to show that people, businesses, and the government make decisions at the margin. Producers (including government agencies) must decide whether to produce a few more or a few less units of the goods and services they provide. Consumers must decide whether to buy a few more or a few less units of hundreds of different goods and services.

2. *Trading Money*. In this role-playing activity, marginal decisions are simplified to an extreme point, by acting out a situation in which a person decides whether or not to trade one amount of money for another—so the marginal benefits and marginal costs of making the trades are extremely clear and easy to see. Also, the activity makes it clear that the highest level of profits for producers or utility for consumers is found by moving to the point where marginal benefits and marginal costs are equal, not the point where the difference between marginal benefits and marginal costs is greatest.

Begin by choosing eight students to play the following parts in an improvisation: One person will be Econ Ed or Edwina, known far and wide as the best economic decision maker in the land. Six characters will be rather foolish—perhaps fairy tale figures such as witches, gnomes, trolls, or the little pigs who built their houses of straw and sticks. Let the students choose the specific characters or make up one of their own, but warn them that the deals they propose are going to be foolish and rejected by Econ Ed/Edwina. The last character is a Sniveley Whiplash-type, who will try to cheat and fool Econ Ed/Edwina into making a bad decision—obviously to no avail ("Curses, foiled again!").

3. Make two copies of Activity 1 and cut out the bills of play money. Give each of the five foolish characters and the Sniveley Whiplash character $5. Give the Econ Ed/Edwina character 12 one-dollar bills.

4. Give the first foolish character time to act out his or her character for the class, and then have the character propose the following deal to Econ Ed/Edwina—"I will give you $5 if you will give me $2." Econ Ed/Edwina is happy to accept this deal. The second foolish character comes on stage and establishes a new foolish character, but offers $5 for just $1, which Ed/Edwina again accepts. The three remaining characters follow suit, but ask for $2, $3, and $4, respectively, in exchange for their $5. Ed/Edwina will accept all of these deals. Then the Sniveley Whiplash character enters (perhaps to boos and catcalls from the students), and tries to convince Ed/Edwina to pay $6 for $5. Of course, Ed/Edwina is too smart to fall for that, and refuses the deal. Give all of the players a hand, and have them sit down.

5. Debrief the activity by asking:

   A. How much money did Econ Ed/Edwina make in these trades? ($3 + $4 + $3 + $2 + $1 = $13)

   B. On which deal did Econ Ed/Edwina make the most money? (The second trade, getting $5 for just $1.)

   C. Would Econ Ed/Edwina have made more money by refusing any or all of the deals he or she made? (No. Refusing any of those deals results in less than $13 of profits.)

   D. Would Econ Ed/Edwina have made more money by accepting the trade with the Sniveley Whiplash character? (No. Accepting that would have reduced profits by $1.)

   E. If another character had offered to trade $5 for $4.99, should Ed/Edwina have accepted the offer? (Yes. It would increase profits by $.01.) What about an offer to trade $5 for $5.01? (No. That would decrease profits by $.01.)

F. What decision-making rule did Econ Ed/Edwina use to maximize profits? (Accept any trade as long as marginal benefits/revenues are greater than marginal costs, up to the point where they are equal; but do not accept any proposal once marginal costs are greater than marginal revenues/benefits. Make sure students understand that the money Econ Ed/Edwina received from the other characters was his/her marginal benefit, while the money he/she paid them was his/her marginal cost.)

G. Ask students to identify more realistic examples of marginal costs and marginal benefits facing producers and consumers in the different kinds of economic decisions they make every day. (For example, a business pays the marginal cost of producing one more unit of output, but gains marginal revenue by selling that unit of output.) Tell students they will use the marginal revenue equals marginal cost rule again tomorrow, in a business simulation.

H. **Extension activity for high ability classes.** Plot the marginal cost and marginal benefit schedules facing Econ Ed/Edwina, and identify the point of highest profits.

6. *The Glove Pattern Factory.* Use masking tape to mark off a square on the floor approximately 28" by 34". Place the desk or small table in the center of the square. Tell students that this is the Glove Pattern Factory. Explain that the class will be producing pairs of glove patterns. Place a large supply of 8 ½" by 11" scrap paper, one red pen, and one blue pen on the table. Demonstrate how to make one pair of glove patterns by standing inside the square. Place your right hand on a piece of paper and trace your hand with a red pen. Repeat, tracing your left hand with a blue pen on a separate sheet of paper. This represents a pattern for one pair of gloves.

7. Hire one student to work in the glove factory and produce as many pairs of quality glove patterns as possible in a two-minute period.

8. After two minutes, stop production. Inspect and discard any patterns that are of poor quality. Count the total number of pairs of acceptable glove patterns that were produced.

9. Distribute copies of Activity 2. Instruct students to record the number of pairs of glove patterns under column 2 on their table as you fill in the table on a transparency of the Glove Pattern Production Table.

10. Hire a second worker to produce glove patterns. Instruct both workers to produce as many pairs of glove patterns as possible in two minutes. At the end of two minutes, stop production, inspect the patterns, and record the number of acceptable glove patterns on the production table in column two.

11. Repeat the production of glove patterns for several more rounds, adding an additional worker each round. Remind workers that they may only use the resources on the table (paper, a red pen, and a blue pen), and they must stand inside the factory as outlined by the masking tape. After each round, record the number of acceptable pairs of glove patterns produced on the transparency as students record the information on their Glove Pattern Production Table.

12. After five to seven rounds, stop production and ask the class to fill in the number of additional glove patterns produced in column 3. Label this column Marginal Product. Explain that this column tells how many extra pairs of glove patterns were produced each time an additional worker was hired. For example, using data from the sample, you might say, "The first worker produced 7 pairs of glove patterns and the additional patterns produced by the first worker compared with no workers at all is 7. Hiring a second worker brings the total number of pattern pairs produced to 15. Thus, the second worker accounts for the production of 8 more pattern pairs than when only one worker is used. The marginal product is 8." And so on, as shown in the table following procedure 17. Substitute numbers from the class simulation in column 3 of Activity 2.

13. Discuss:

A. What happened to the total number of glove pattern pairs produced as additional workers were hired? (It increased.)

B. What happened to the marginal product as additional workers were hired? (It increased and then decreased.) Why do you think this occurred? (At first, having more workers may increase efficiency as they help each other and specialize. Soon, however, there will not be enough space, tasks, or capital equipment (pens) to keep all workers busy all of the time. Marginal product will begin to diminish. Tell students this is an example of the law of diminishing returns—see the definition in the fourth content standard for this lesson.)

14. Divide the class into management teams of four to five students each. Ask each team to decide how many workers it will hire and to prepare a justification for its decision.

15. After allowing time for the students to reach decisions, ask each group to state its decision and give its justification. Many times, groups will stop hiring workers as soon as marginal product starts to diminish. Later, they will see that this decision is incorrect.

16. Tell the groups that you have additional information for them that might make them change their decisions. Tell them to label column 4, "Value of Additional Pattern Pairs Produced." Explain that each glove pattern is worth $.02. Thus, the "Value of Additional Glove Patterns" produced is the marginal product of the last worker hired times $.02. E.g., the value of the second worker to the firm is that worker's marginal product times $.02, and so on. Have students label column 5, "Marginal Cost of Labor (2 min. worked)." Tell students that workers earn $.12 for each two minutes worked. Therefore, the additional labor cost of the first worker compared to having no workers at all is $.12. In fact, the marginal cost of each worker (for two minutes of work) is $.12.

17. Allow the management teams time to decide how many workers to hire. Then ask each team for its new decision and justification. Teams should stop hiring workers at the point where the marginal cost of hiring the next worker exceeds the additional (marginal) value of what that worker produces. In the sample, four workers should be hired.

18. Explain the hiring rule: "Additional workers will be hired as long as the additional (marginal) value of the output of the next worker employed exceeds the additional (marginal) cost of hiring that worker." Ask students to discuss why this happens. (With a set wage rate and falling marginal product, it eventually costs more

GLOVE PATTERN PRODUCTION TABLE
(SAMPLE)

# of Workers	Pairs of Glove Patterns (2)	Marginal Product (3)	Value of Additional Pattern Pairs Produced (4)	Marginal Cost of Labor (2 min. worked) (5)
1	7	7	$.14	$.12
2	15	8	.16	.12
3	23	8	.16	.12
4	30	7	.14	.12
5	33	3	.06	.12
6	34	1	.02	.12

to hire an additional worker than the worker adds to revenues. Note that additional workers are not as productive because they have less equipment and space to work with, not because the later workers hired are less motivated or diligent than those hired earlier. In fact, in terms of doing this kind of simple job, we can assume the workers are essentially identical and interchangeable—we could switch the first and last workers hired and still see the same general production patterns—which is why they are all paid the same wage.)

19. Ask students how many workers should be hired if labor costs increase to $.15 per two minutes of work. (Using the sample data, three workers should be hired.)

20. Ask students what happens to the per unit costs of producing glove patterns, once the law of diminishing returns sets in. (With the constant wage rate per worker and diminishing returns in production, the per unit cost of producing additional glove patterns increases. You may want to show this by dividing the number of gloves produced by the total cost of the workers hired at each employment level *after* diminishing returns set in.)

21. Since per unit production costs rise as output levels increase in the range of diminishing returns, what must happen to product price in order to make producers willing to produce and sell more units? (The price must rise to cover the higher per unit costs. This is, in fact, a key rationale for the Law of Supply—quantity supplied increases as price increases—because the higher price allows producers to cover their higher per unit production costs as output levels increase.)

22. Ask students to give other examples of personal and government problems to which marginal analysis might be applied. List the examples on the chalkboard. Ask the class what data would be needed to decide how to solve these problems.

ASSESSMENT

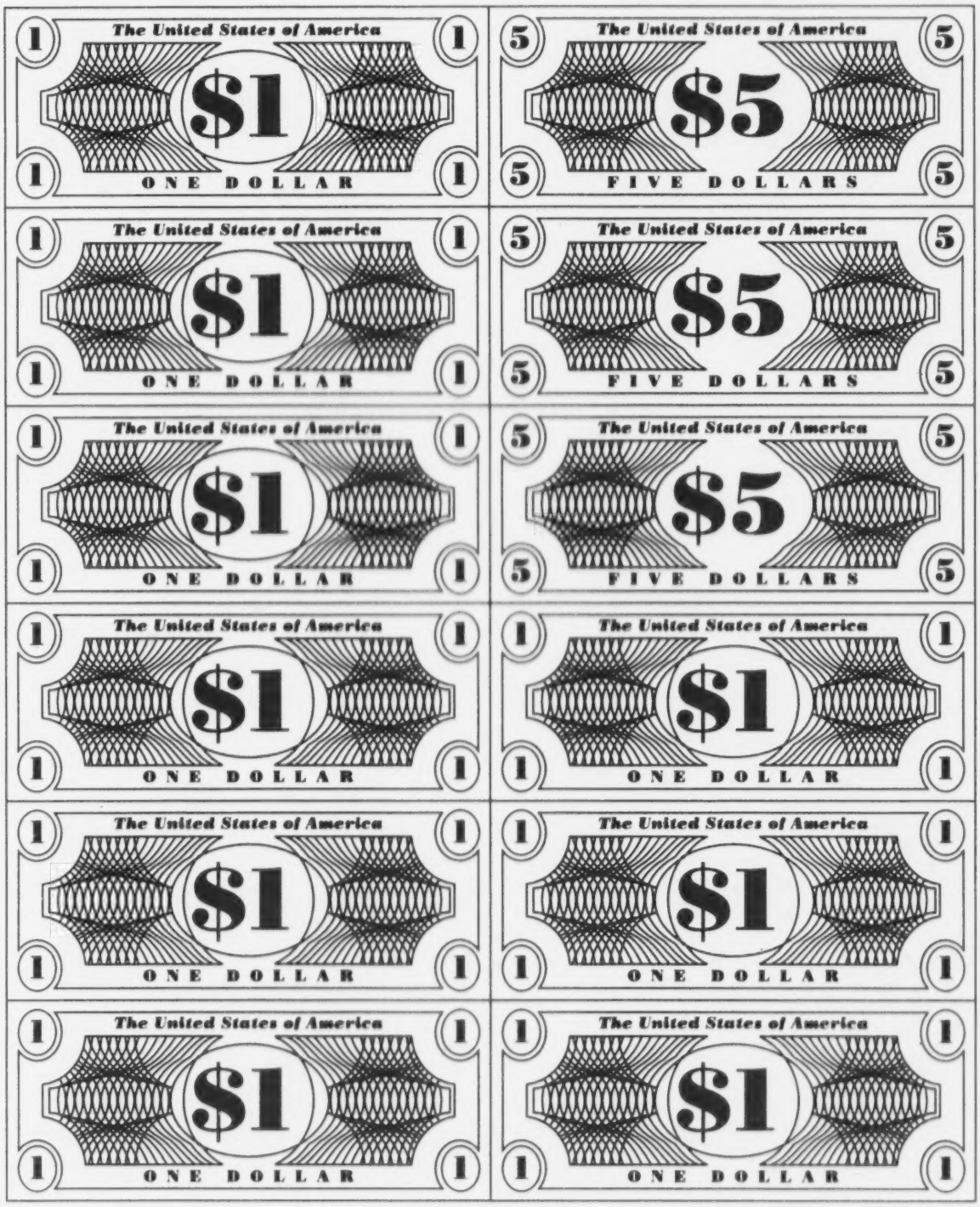
Distribute copies of Activity 3 to each student. Instruct students to use marginal analysis to determine who will get summer jobs.

Assessment Answer: As shown in the table below, the student will be hired, but his or her friend will not. The additional (marginal) cost of hiring the friend—the fifth worker who applied—would exceed the value of the additional (marginal) product produced by the fifth worker.

# of Workers (1)	# of Rolls of Grip Tape Produced Each Day (2)	Additional Rolls of Grip Tape Produced Per Day (3)	Value of Additional Grip Tape Rolls Produced Per Day (4)	Marginal Labor Cost Per Day (5)
1	20	20	$60	$40
2	50	30	90	40
3	70	20	60	40
4	85	15	45	40
5	95	10	30	40
6	100	5	15	40

ACTIVITY 1

Name _____



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ACTIVITY 2
GLOVE PATTERN PRODUCTION TABLE

Name _____

# of Workers (1)	Pairs of Glove Patterns Produced (2)	(3)	(4)	(5)
1				
2				
3				
4				
5				
6				

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ACTIVITY 3
SUMMER JOBS IN THE SKATEBOARD GRIP TAPE FACTORY

Name _____

You and your friend have applied for a summer job at RAD SPORTS. RAD manufactures Skateboard Grip Tape. RAD has selected a pool of six qualified applicants from which to choose summer employees. Summer employees are hired from this pool of applicants on a first come, first serve basis. You were the fourth applicant to apply and your friend was the fifth.

RAD's Skateboard Grip Tape is manufactured by people working with two machines. RAD sells its grip tape for $3 a roll and can sell as many rolls as it can produce at that price, but very few rolls if it increases price even a little. It pays its workers $40 per day. The following table shows how many rolls of grip tape are produced per day with each additional summer employee hired, up to six workers.

# of Summer Employees	# of Rolls of Tape Produced Per Day
0	0
1	20
2	50
3	70
4	85
5	95
6	100

Will you and your friend be hired by RAD SPORTS this summer? Explain your answer.

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LESSON SEVENTEEN
THE CIRCULAR FLOW OF ECONOMIC ACTIVITY

INTRODUCTION

The circular flow of economic activity is a simplified model of the basic economic relationships in a market economy. This model gives students an overview of how households, businesses, and government interact in different markets by exchanging goods and services, productive resources (also known as inputs or factors of production), and money.

CONCEPTS

Circular flow of goods, services, productive resources, and money payments

Productive resources (human resources, natural resources, capital)

Resource payments (wages and salaries, rent, interest, profits)

Interdependence

CONTENT STANDARDS

Productive resources are all the natural resources, human resources, and capital that can be used in the production of goods and services.

Entrepreneurship refers to the human resources that assume the risk of organizing other resources to produce goods and services.

The United States economy is organized around a system of private markets in which prices for goods and services are determined by the interaction of buyers and sellers.

Households are individuals or family units which, as consumers, buy goods and services from firms and, as resource owners, sell productive resources to firms.

Profit-seeking firms are the basic production units in a market economy.

The circular flow model shows the interactions between households and producers in product and factor (or input) markets.

Some goods and services are provided by the government.

The government acquires money to pay for the goods and services it consumes and employs through taxes and borrowing, and in some cases by directly charging user fees, such as tolls on highways or entrance fees to public parks.

OBJECTIVES

◆ Analyze the economic relationships that exist between households and businesses in a market economy.

◆ Illustrate the economic relationships among households, businesses, and government by using a circular flow diagram.

◆ Identify the three types of productive resources (inputs) and the economic returns each factor earns.

LESSON DESCRIPTION

In this lesson, students read about market interactions and participate in a simulation titled "Econoland," which involves transactions between businesses and households. They also learn how government fits into the circular flow of economic activity in a market economy.

TIME REQUIRED

Two class periods. Day one—procedures 1-8. Day two—procedures 9-12 and Assessment.

MATERIALS

★ Five copies of each type of productive resource sheet from Activity 1 for each student in one half of the class

★ **Business** card and ten $100 bills (Activity 2) for the other half.
Prepare a few extra sheets and cut all of the sheets apart. Cut out 10 ECONO slips for each student in one-half of the class, but do not distribute these slips until the appropriate time in the simulation (see procedure 7).

★ A copy of Activities 3 and 4 for each student. An 8 ½" by 11" (or larger) sheet of paper on which you have written "ECONO FACTORY"

Masking tape or straight pins.
Two small prizes (optional).
Transparencies of Visuals 1 and 2.

PROCEDURE

1. Explain that people participate in the economy in a variety of ways. People make decisions as consumers when purchasing goods and services. They make decisions as producers when providing human and natural resources and savings to allow for investments in capital goods. They also make decisions as citizens/voters that influence the economic decisions made collectively in the economy.

2. Explain that students will engage in a simulation called "Econoland" to improve their understanding of the interrelationships between households and businesses in a market economy.

3. Give each student a copy of Activity 3. Tell students to read the Overview. Answer any questions about the concepts involved.

4. Divide the class in half. Students in one group will represent business firms and students in the other group will represent households. Each business firm should receive $1000 in the form of ten $100 bills, and a Business badge to wear during the simulation. Each household should receive 15 Household Resource cards.

Note: Approximately equal numbers of Natural Resources, Human Resources, and Capital Goods cards must be distributed among the households as a whole. However, it is not necessary or desirable to give a household five of each type of card. You can give one student 15 Natural Resources cards and another student 10 Human Resources and five Capital Goods cards. The total number distributed to each household must be 15.

5. Tell students to read the instructions for the "Econoland" simulation.

6. Tape the ECONO FACTORY sign at the place in the classroom where the businesses are to exchange sets made up of one Natural Resources card, one Human Resources card, and one Capital Goods card for one ECONO. ECONOs represent goods and services that will be sold to households. The teacher or a student may staff the ECONO FACTORY.

7. Review the instructions for the "Econoland" simulation and answer any remaining questions. Students may have up to 20 minutes to engage in exchange activities, but after one-fourth to one-third of the households have sold all their cards, announce that exchanges will end in five minutes. Students must know in advance when the exchanges will end so they can plan for the orderly sale of their remaining productive resources and products. Be sure that households know they must sell their cards for money and use the money to buy ECONOs. Businesses must pay money for the productive resource cards and then sell ECONOs to households.

8. Conduct the simulation. It is possible that some households may try to circumvent the business process by bringing their resource cards directly to the ECONO FACTORY. Explain that they lack a Business badge and are unable to produce ECONOs.

9. Distribute a copy of Activity 4 to each student. Instruct students to read Parts I and II and then complete Part II, using the information they gained from Activity 3 and from participating in the simulation.

10. Discuss the students' answers regarding the flow chart. Perhaps choose one student to put his or her version of the completed flow chart on the chalkboard and have other students evaluate it. Project a transparency of Visual 1 and explain the circular flow of productive resources (factors of production), goods and services (products), and money payments shown on the diagram. Ask students to describe how households and businesses are interdependent.

11. Tell students to read and complete Part III of Activity 4. Discuss their answers.

12. Project the transparency of Visual 2 and ask students to compare the visual to their diagrams on Activity 4. Discuss all the ways the circular flow model was altered to incorporate the government sector and suggest that even more

changes would be needed to show international trade relationships (imports and exports).

Note: Transfer payments are government payments for which recipients do not currently perform productive services. Significant transfer payments in the United States today include Social Security benefits, Medicare and Medicaid, government employee retirement benefits, unemployment compensation, and public assistance (such as Aid to Families with Dependent Children and food stamps).

ASSESSMENT

Explain that there are three basic economic questions that must be answered in any society: (1) what to produce? (2) how to produce? (3) for whom to produce? Have students use the circular flow model to write a brief paper on how those decisions are made in the United States. If students have learned supply and demand analysis, they should incorporate those ideas into their papers.

ANSWERS TO ACTIVITY 4

Part II

1. Money payments
2. Finished goods and services (ECONOs)
3. Productive resources (human resources, natural resources, capital goods.)
4. Money income payments (wages and salaries, rents, interest, profit)
5. Product market
6. Productive resource market
7. Money payments
8. Finished goods and services (ECONOs)
9. Productive resources (human resources, natural resources, capital goods.)
10. Money income payments (wages and salaries, rents, interest, profit)

You may wish to point out that, from the perspective of businesses, line 1 is sales revenue, line 2 is its output, line 3 represents inputs (the productive resources it buys), and line 4 represents payments for productive resources (expenses and profit).

Part III

From Households to Government: 1. productive services; 2. money payments (mainly taxes for government services)

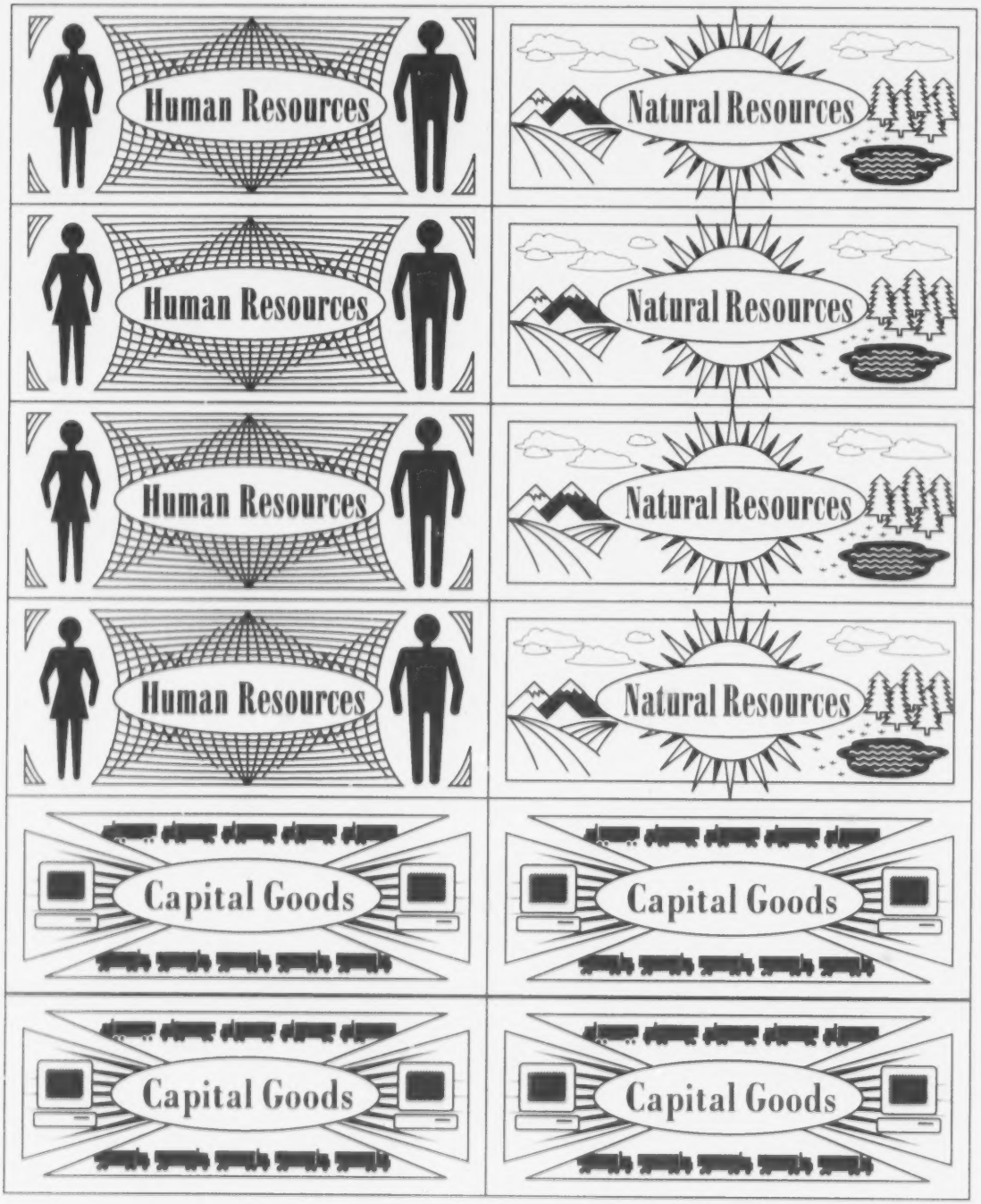
From Businesses to Government: 1. goods and services supplied; 2. money payments (mainly taxes for government services)

From Government to Households: 1. government services to households; 2. money income payments and transfer payments

From Government to Businesses: 1. government services to businesses; 2. money payments for purchases of goods and services.

ACTIVITY 1
HOUSEHOLD CARDS

Name _____



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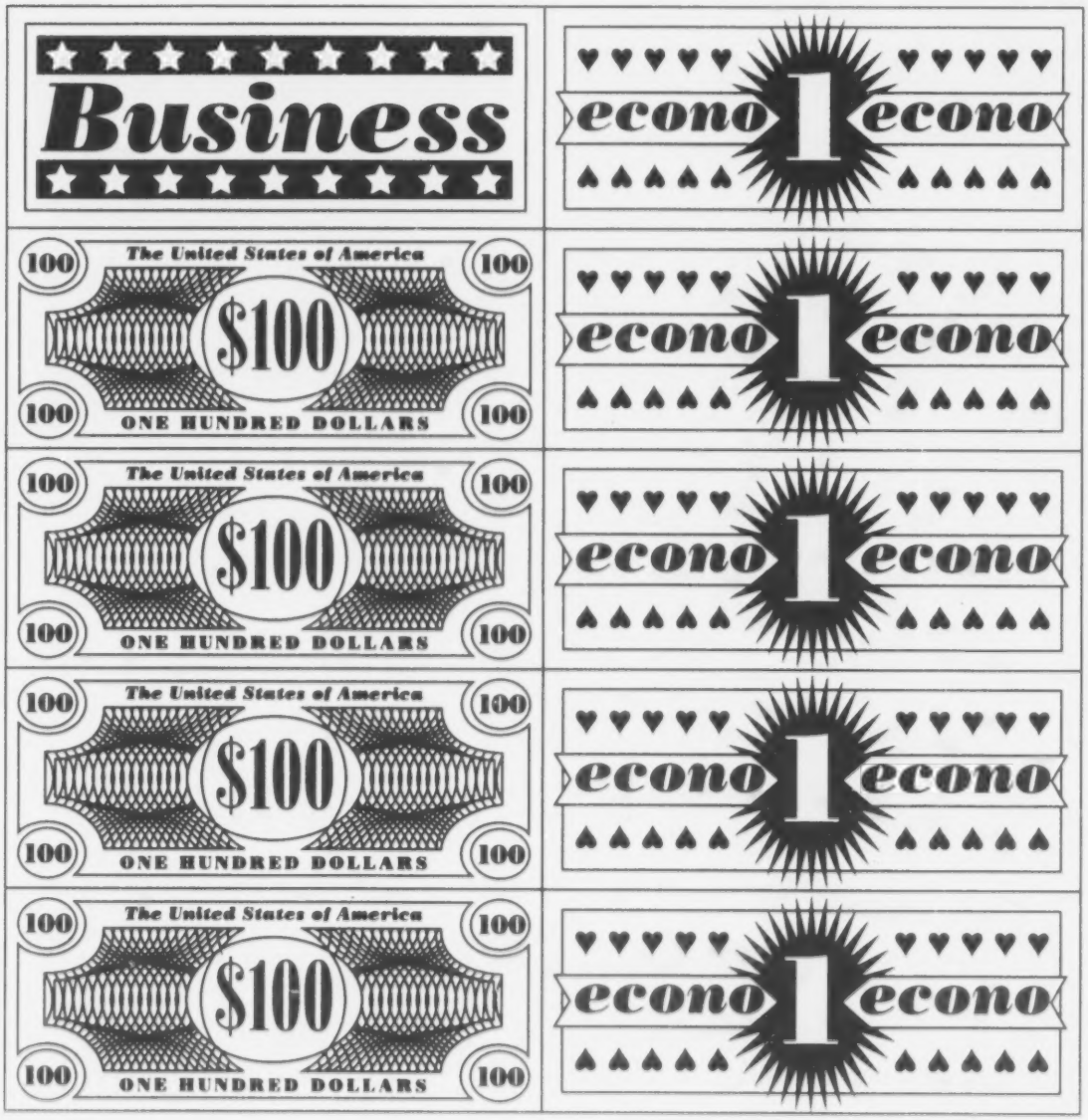
ACTIVITY 2
BUSINESS CARDS

Name _____



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ACTIVITY 3
EARNING A LIVING

OVERVIEW:

The Roles of Households (Individuals and Families)

Individuals function as both consumers and producers. In the U.S. economy, households act as consumers when they buy goods and services that businesses produce. These exchanges take place in **product markets**. Buying food at a local grocery store is an exchange in a product market.

As resource owners, individuals function as producers by supplying productive resources to businesses, which use these resources to produce goods and services. These exchanges take place in **factor markets** (or productive resource markets). Examples of the transactions that occur in factor markets are businesses paying wages to workers, rent to landowners, or interest on loans for plant and equipment.

There are three categories of productive resources used to produce goods and services: human resources, natural resources, and capital.

Human resources are the number of people available for work and the skills and motivation of these individuals. Businesses pay wages and salaries to households for their labor services. **Entrepreneurship** refers to a special type of human resource that assumes the risk of organizing other resources to produce goods and services. The payment to entrepreneurs is called profit.

Natural resources are gifts of nature. They include land, oceans and rivers, oil and mineral deposits, and climatic conditions.

Capital refers to the manufactured or constructed items used by businesses. They include buildings, machinery, and equipment used in the production process. (In everyday speech, people commonly refer to money as capital; but in economics, the term capital refers to the real productive resources—buildings, machines, and tools—used to produce other goods and services.)

The Roles of Business Firms

Like households, businesses function as both consumers and producers. Businesses supply goods and services in the product market. They are the buyers, or consumers, of the productive resources (human resources, natural resources, and capital) used to produce goods and services. Businesses try to sell their products for more than their costs of production, thereby earning a profit. If a business is not successful, it will incur a loss. In order to earn profits, businesses must supply products that households want to buy, and supply them at competitive prices. If a business doesn't produce what households want to buy, or if it doesn't keep costs of production down enough to compete with other producers, it will incur losses. A firm will eventually go out of business if it continues to incur losses.

INSTRUCTIONS FOR THE "ECONOLAND" SIMULATION:

In this simulation, you will play the role of either a household or a business. Read carefully about both roles, then your teacher will assign your role.

Households: Your first role is to sell to businesses the human resources, natural resources, and capital they need to produce a product. Then use the income you earn from selling those productive resources to buy, from businesses, the goods and services your household wants to consume. These goods and services are called ECONOs in this simulation. Your success as a household will be measured by the number of ECONOs you accumulate. You will be given 15 Productive Resource cards. You may not want to sell all your resources immediately because their prices may change as the game goes on. However, in general, the more resources you sell, the more money you will earn to acquire ECONOs. Be sure

ACTIVITY 3 (continued)

to sell all your resource cards before the activity ends, because only the ECONOs you have will count at the end of the simulation.

Business Firms: Your roles are to supply the goods and services households want and earn a profit in the process. In this activity, the only products households want to buy are ECONOs. To produce one ECONO, you must acquire 1 unit of human resources, 1 unit of natural resources, and 1 unit of capital. You must buy these resources from households at the best price you can negotiate. Once you have accumulated 1 unit of each resource, you may turn the set of three cards in at the ECONO FACTORY, which will produce 1 ECONO for you. You are then free to sell the ECONO to any household for the best price you can negotiate. To earn a profit, you must sell the ECONO for more than your costs of production, which in this game includes the wages and salaries paid for human resources, the rent paid for the use of natural resources, and the interest paid for the use of capital. You can then use the money you receive to buy more productive resources in order to produce and sell more ECONOs. You have $1000 to start the game. Your business success will be measured by the dollars of profit you are able to earn during the activity. Try to sell all your products by the end of the activity. If you run out of money and have no ECONOs to sell, announce publicly that you are bankrupt and return to your seat.

A Word about Pricing: Only $100 bills are used in this activity. It is possible to arrive at prices other than $100, $200, $300, etc., by combining several items in a single transaction. For example, two Productive Resources cards could be sold for $300, which is the equivalent of $150 each. Five cards could be sold for $300, which is the equivalent of $60 each. However, you must agree on a price for which an exchange can take place using the denominations of money provided in the simulation. The suggested price range for Productive Resource cards is $50 to $300, but any price that buyers and sellers agree to and can complete using $100 bills is acceptable.

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ACTIVITY 4
THE CIRCULAR FLOW OF ECONOMIC ACTIVITY

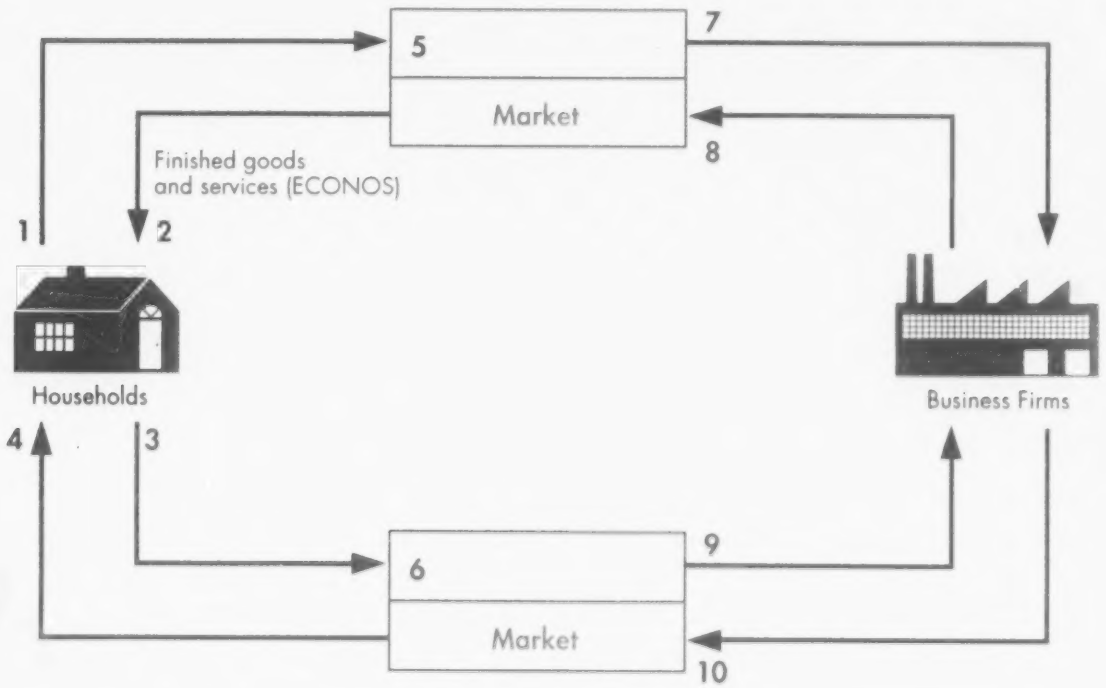
Name _____

Part I

Households supply the natural resources, human resources, and capital they own to businesses in exchange for money income payments—wages, salaries, rents, interest, and profits. These income payments are used to purchase the finished goods and services supplied by businesses. Business firms use the proceeds from these sales to purchase more productive resources from households, to make more goods and services to sell. This is how the circular flow of productive resources, goods and services, and money income payments, is established and maintained.

Part II

In the circular flow chart shown below, the curved lines with arrows show the direction of payments and products that flow between households and businesses. The outer set of lines shows the flow of income (money payments). The inner set of lines shows the flow of finished products and productive resources for which the payments are made. Label each line or empty box to complete the circular flow model of a simple economy. (One label, for the flow of finished goods and services [ECONOS], has been provided to help you get started.)



ACTIVITY 4 (continued)

Part III

Now expand the circular flow chart to include government. Households sell some of their productive resources to the government as well as to businesses, and businesses sell some of their finished goods and services to the government as well as to households. The government collects money (mostly taxes) from both businesses and households, and also makes money payments to both of these groups. In the space below, list all the appropriate flows you can think of.

From Households to Government

1. _____

2. _____

From Businesses to Government

1. _____

2. _____

From Government to Households

1. _____

2. _____

From Government to Businesses

1. _____

2. _____

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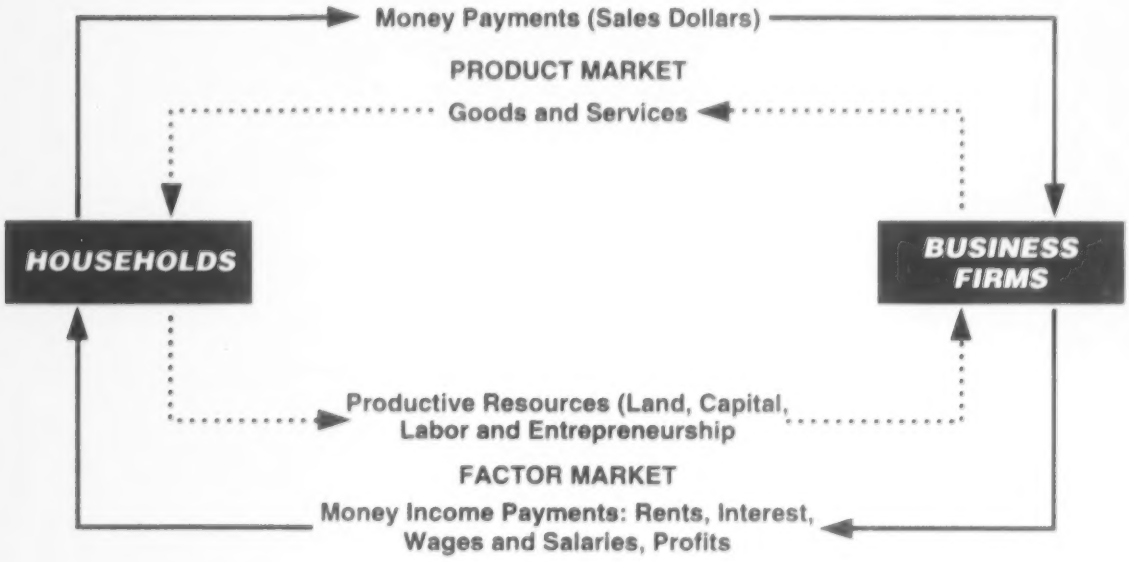
VISUAL 1
THE CIRCULAR FLOW OF PRODUCTIVE RESOURCES, GOODS AND SERVICES, AND MONEY PAYMENTS



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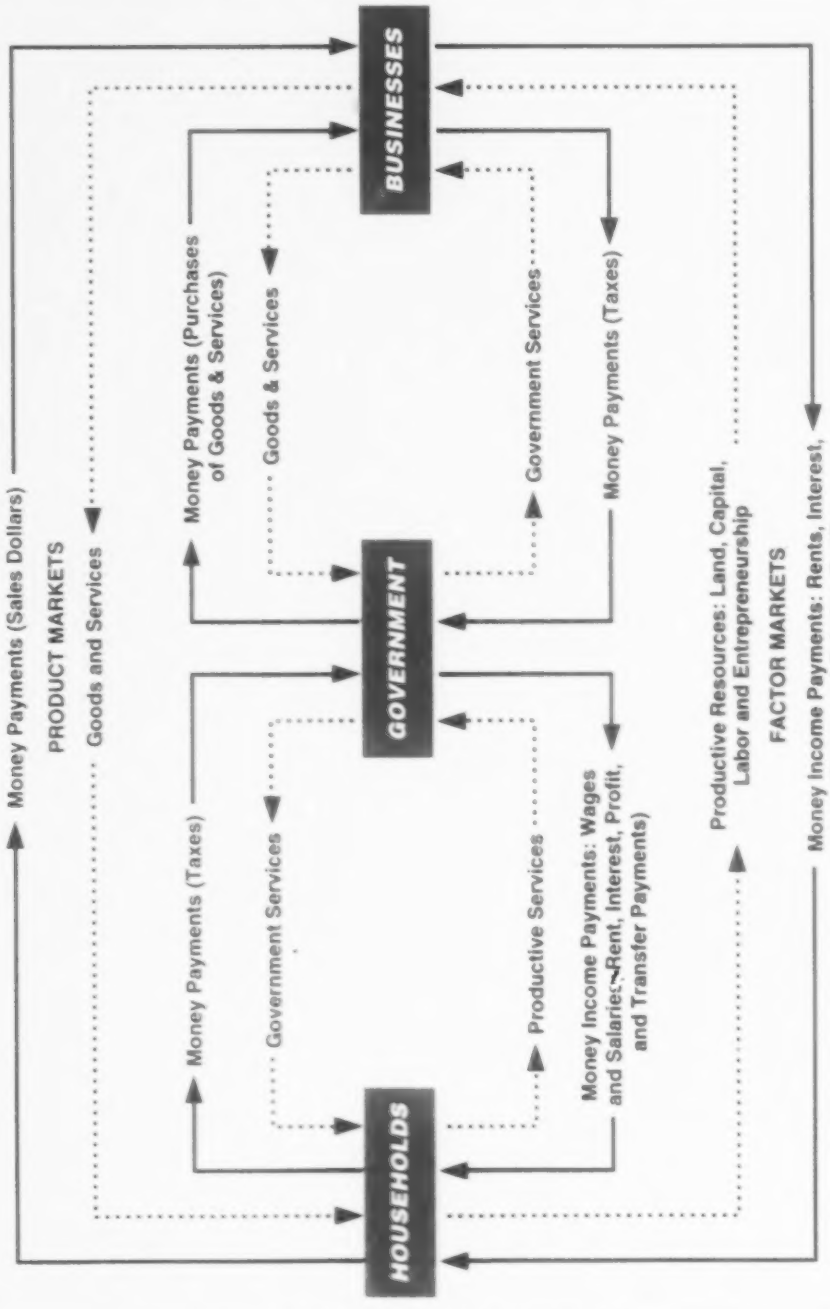
VISUAL 2
GOVERNMENT IN THE CIRCULAR FLOW OF PRODUCTIVE RESOURCES, GOODS, SERVICES, AND MONEY PAYMENTS



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LESSON EIGHTEEN
ECONOMIC UPS AND DOWNS

INTRODUCTION

News reports about the economy often refer to data concerning economic growth, recessions, inflation, and unemployment. Students need to understand these data and how they influence peoples' decisions to buy, save, invest, and produce.

Business cycles are sequences of rises and falls in real (inflation-adjusted) Gross Domestic Product (GDP), a basic measure of overall economic output. Business cycles typically consist of four phases: a period of expansion; a peak; a period of contraction; and a trough or bottoming-out period. Then another expansion begins, and the whole cycle is repeated.

During expansionary periods, productive capacity and GDP increase, employment levels increase, and wages and prices also tend to rise. During contractionary periods, the reverse is usually true: there is typically higher unemployment; underutilized productive capacity; stagnant or declining GDP; and falling, constant, or at least slowly increasing wages and prices.

CONCEPTS

Business cycles
Gross domestic product
Unemployment
Inflation
Recession
Economic growth
Consumer price index

CONTENT STANDARDS

Gross Domestic Product is used as an indicator of the state of the economy. It is a basic measure of economic output.

In the United States and other industrialized economies, the average annual rate of economic growth over long periods of time has been relatively steady. However, short-run fluctuations in business activity, called business cycles, are not smooth or completely predictable.

Inflation is a sustained increase in the average price level of the entire economy; deflation is a sustained decrease in the average price level of the entire economy.

The Consumer Price Index (CPI) is the most commonly used measure of price level changes. It compares prices for a set "basket" of certain goods and services in one year with prices for the same goods and service in some earlier year (a base year).

OBJECTIVES

◆ Classify a series of years as periods of recession or expansion.

◆ Analyze economic data for the trends they reveal.

◆ Explain how periods of expansion and contraction influence peoples' lives, including students' career plans.

LESSON DESCRIPTION

Students use economic data to learn about business cycles; to determine the relationships between GDP, inflation, and unemployment; and to understand how expansions and contractions in the economy can affect their own career goals.

TIME REQUIRED

One class period.

MATERIALS

Transparencies of Activity 1 (A-C)
★ One copy of Activities 1, 2, and 3 for each student.

PROCEDURE

1. Before using the data in Activity 1, you may wish to update them. The best source of current data is the appendix to the *Economic Report of the President*, which is published every February by the Government Printing Office in Washington, D.C.

2. Distribute copies of Activities 1 (A-C) and

★ all students-basic course material
● average and above average students

2. Briefly review the general meaning of the concepts and graphs in Activity 1 (A-C). Put students in small groups, and instruct them to use the information on the graphs in Activity 1 to answer the questions on Activity 2.

3. Display the transparencies of Activity 1. Review the answers to the questions on Activity 2.

A. Recessions occurred during 1973-75, 1979-80, 1981-82, and 1990-91.

B. The unemployment rate tends to increase.

C. In the 1973-75 recession, the Consumer Price Index rose sharply the first year and then rose more slowly. The rate of inflation increased in the 1979-80 recession but declined significantly after the recession ended. The rate of inflation declined during the 1981-82 and 1991-92 recessions.

D. Periods of expansion include 1972-73, 1975-79, 1980-81, 1982-90, and 1991 through at least 1994.

E. The longest expansion was 1982-90; 1980-81 was the shortest.

F. The unemployment rate usually declines.

G. The rate of inflation tends to increase more rapidly toward the end of expansion periods than at the beginning.

H. The highest rate of inflation occurred in 1980, the smallest in 1986.

4. Ask the students why they think the lesson is titled, "Economic Ups and Downs." Explain that the ups and downs shown on the graph from Activity 1 are referred to as business cycles. Explain that business cycles are sequences of rises and falls in the overall level of economic activity, particularly as measured by real Gross Domestic Product. Although business cycles occur repeatedly, they do so at irregular and unpredictable intervals. Business cycles typically consist of four phases: a period of expansion in total economic activity; a peak or topping-out period; a contraction period, during which total economic activity declines; and a trough or bottoming-out period. A new expansion then begins, and the whole cycle of phases is repeated. Ask students for examples of these phases using the graph of real GDP.

5. Ask students:

A. What years was the economy in contraction? at a peak? in expansion? and at a trough?

B. What happens to prices and unemployment during contractions and recessions? (In rare occasions the price level actually declines, but usually the rate of increase simply slows, and that effect is sometimes delayed. In the 1970s, the economy experienced aggregate supply decreases or "shocks" that led to "stagflation"—inflation and higher unemployment at the same time. Unemployment increases during recessions, whether caused by decrease in aggregate supply or aggregate demand.)

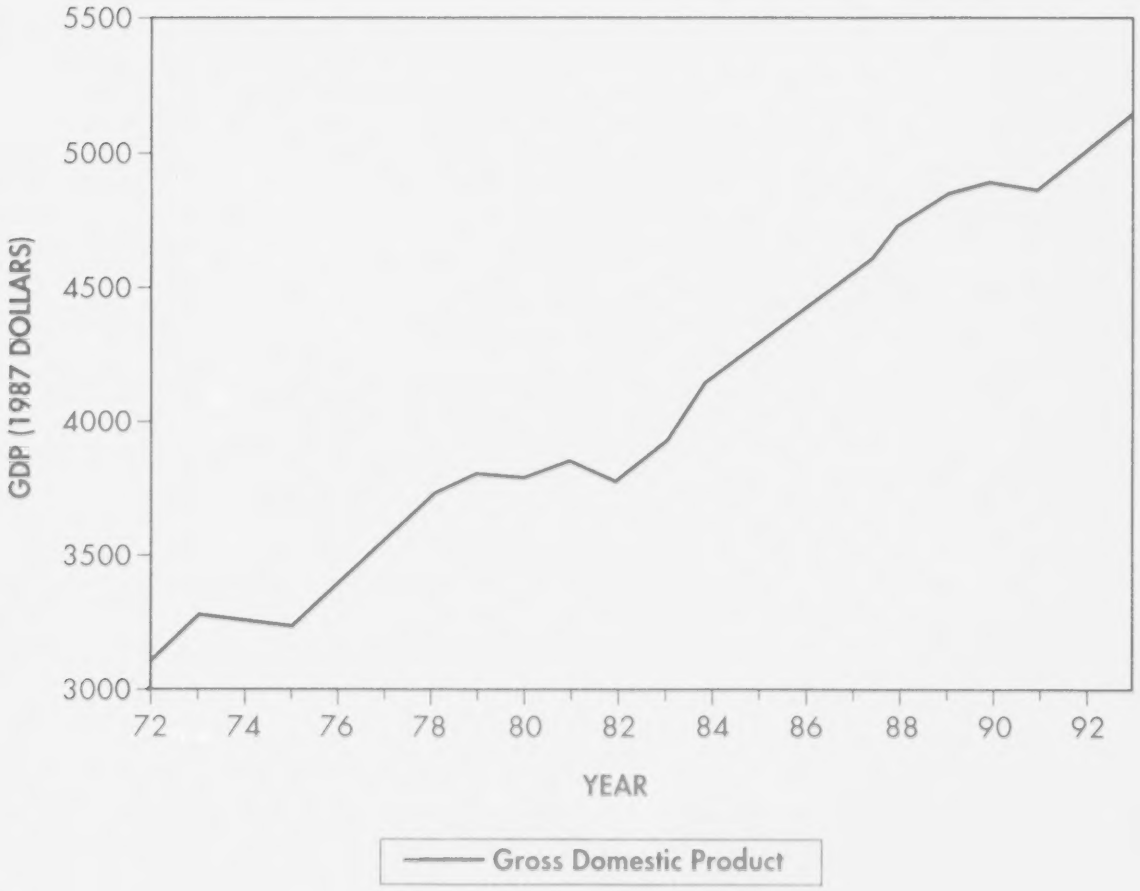
C. What happens to prices and unemployment during expansions? (Prices tend to increase, although less during the early stages of recovery than during the later stages. Unemployment usually declines.)

6. Instruct students to use the information from Activity 1 to write a news flash on the state of the economy for the year of their birth.

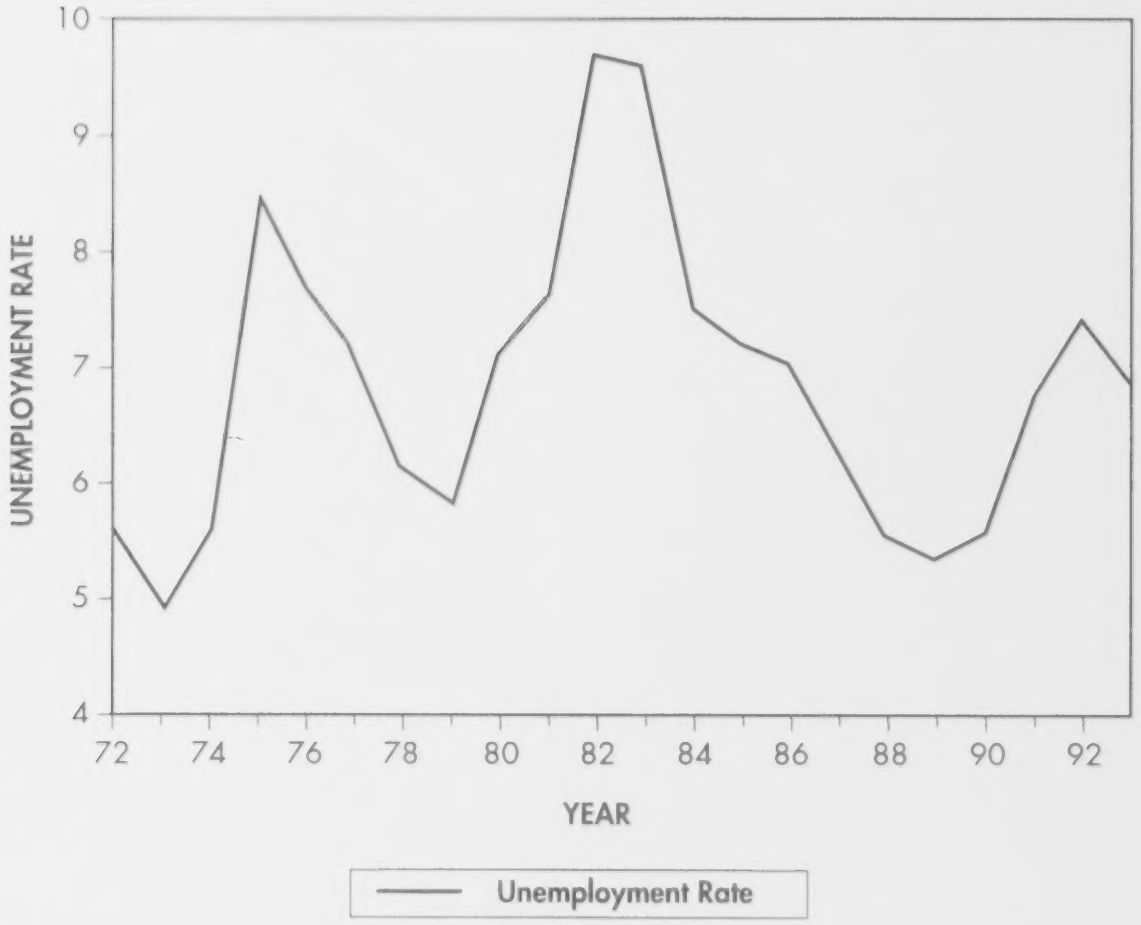
ASSESSMENT

Distribute copies of Activity 3 for students to complete, again referring to the graphs in Activity 1. Have students share their answers. (High School Graduate 2 had a better chance of achieving his or her goals. The economy was in an expansionary period and the unemployment rate was declining. The 1973 graduate left high school at the beginning of a recession when unemployment was rising.)

ACTIVITY 1(A)
GROSS DOMESTIC PRODUCT IN 1987 DOLLARS (x 100,000)



ACTIVITY 1(B)
UNEMPLOYMENT RATE, ALL CIVILIAN WORKERS



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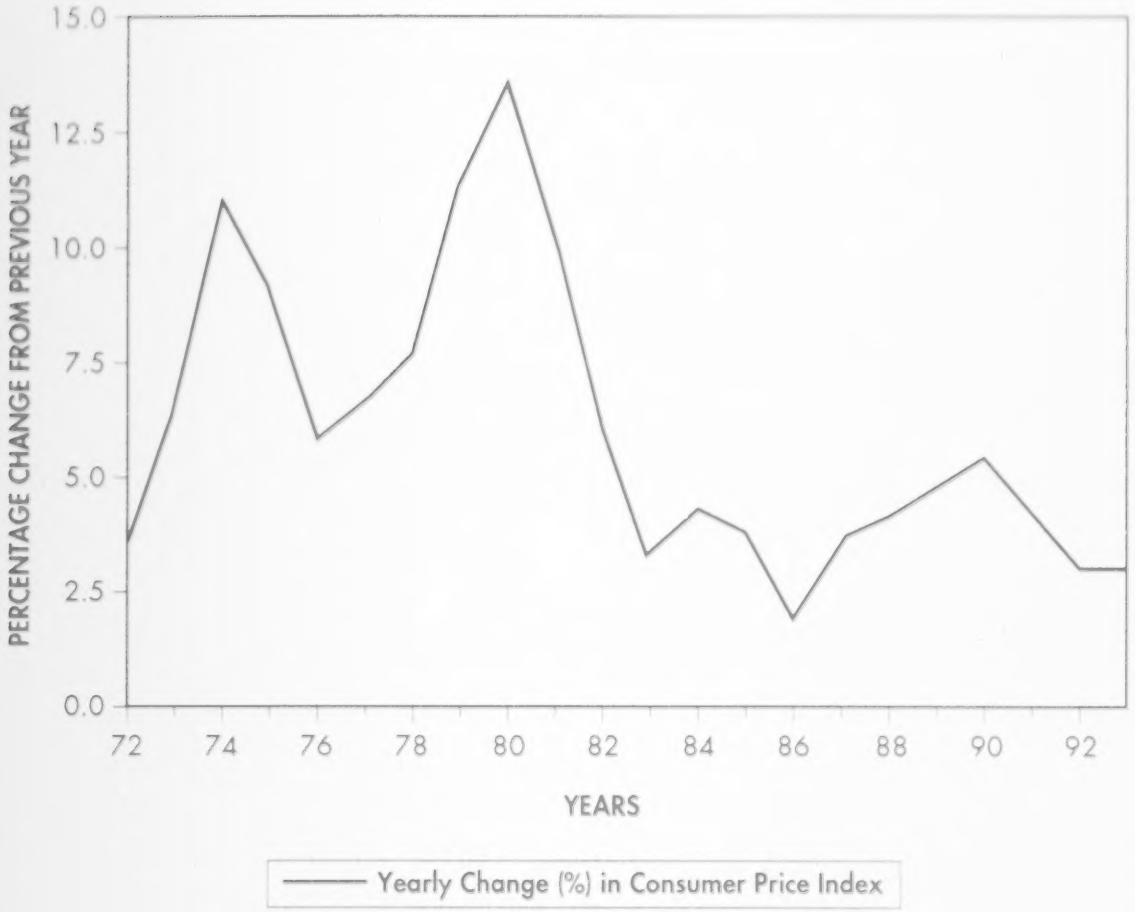
ACTIVITY 1(C)
YEAR-TO-YEAR CHANGES IN THE CONSUMER PRICE INDEX (DECEMBER TO DECEMBER)



ACTIVITY 2
UPS AND DOWNS

Name _____

Real Gross Domestic Product measures the output of final goods and services in the economy in constant dollars (i.e., with any effects of inflation or deflation eliminated). In general, increases in Real Gross Domestic Product are looked on as favorable developments, and decreases as unfavorable.

The Consumer Price Index is the most widely known measure of changes in the average price level. A sustained rise in the price level is called inflation; a sustained decline is called deflation. Both inflation and deflation are undesirable, because they arbitrarily affect different people's real purchasing power in different ways, depending largely on how difficult or easy it is for the dollar level of their income to change as the price level changes. Rising or falling price levels can also introduce risk and uncertainty into businesses' production decisions.

The civilian unemployment rate indicates the percent of the civilian labor force that is out of work. In general, low unemployment rates are considered desirable, and high unemployment rates undesirable.

Use the above information and the graphs from Activity 1 to answer these questions:

A. A recession is technically defined as a period when Real Gross Domestic Product drops for six consecutive months or more. During which years did we have recessions?

B. What happened to the unemployment rate during these recessions?

C. What happened to the Consumer Price Index during and just after these recessions?

D. Real Gross Domestic Product increases during a period of economic expansion. During which years did the economy expand?

E. Which was the longest period of economic expansion? Which was the shortest period of economic expansion?

F. What usually happens to the unemployment rate during periods of economic expansion?

G. What usually happens to the Consumer Price Index during economic expansions?

H. When did the highest rate of inflation occur? When did the lowest rate of inflation occur?

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ACTIVITY 3
IF YOU COULD CHOOSE?

Name _____

A. Read the situation for each high school graduate below. In which year would you prefer to have graduated? Which graduate had a better opportunity of achieving his or her economic goals? Explain why.

High School Graduate 1: The year is 1973. You have just graduated from high school. You want to work for 1-2 years to save money and then go to college.

High School Graduate 2: The year is 1986. You have just graduated from high school. You want to work for 1-2 years to save money and then go to college.

B. What do you predict will be the status of the economy one year after you graduate from high school? What evidence supports your prediction? How could this affect your career plans?

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LESSON NINETEEN
AGGREGATE SUPPLY AND DEMAND: THE SUM OF THEIR PARTS, AND MORE

INTRODUCTION

In the last 10-15 years, the biggest pedagogical innovation in teaching introductory economics has been the use of aggregate supply and demand curves to illustrate key macroeconomic concepts and policy issues. These curves look and operate so much like the standard supply and demand curves featured at the heart of microeconomics that it is somewhat surprising it took so long for the aggregate supply and demand curves to become this popular. But of course macroeconomics itself is a much younger field than microeconomics, in some ways dating back only to John Maynard Keynes' *General Theory of Employment, Interest and Money*, published in 1936.

Unfortunately, the conceptual underpinnings of aggregate supply and aggregate demand curves are quite different from those of the supply and demand curves for an individual product or productive resource. Accordingly, an inherent problem in using the aggregate curves is to make sure students understand those differences. For that reason and others, many high school economics textbooks still do not feature aggregate supply and aggregate demand curves, even though virtually all college-level principles textbooks now do. The use of these models swept through the college textbooks quite rapidly, however, and it seems likely that many, if not most, high school texts will soon follow suit.

Because these models may not be familiar to many high school instructors, an appendix with background information is included at the end of the lesson. If the approach is new to you, or you are uncomfortable using it for any reason, read the appendix before you look through the following activities.

CONCEPTS

Aggregate demand
Aggregate supply

CONTENT STANDARDS

The intersection point of a nation's aggregate supply and aggregate demand curves determines its equilibrium level of real national income (which is also its equilibrium level of real output) and the equilibrium price level for all goods and services.

Aggregate supply curves show the real dollar value of the total quantity of goods and services produced in an economy at different price levels in a given time period (usually one year). Constraints on the level of an economy's aggregate supply curve are the quantity and quality of productive resources it has available, and the current state of its technology.

Aggregate demand curves show the real dollar value of all the final goods and services that people and organizations in an economy will purchase at different price levels in a given period of time (usually one year). The level of aggregate demand at a given price level is determined by adding together all expenditures for personal consumption, business investment, government spending, and net exports (i.e., exports minus imports).

OBJECTIVES

◆ Identify components of aggregate supply and aggregate demand, and factors that will cause those schedules to shift over time.

◆ Use the aggregate supply and aggregate demand model to analyze the effects of various macroeconomic events, including different stabilization policies.

LESSON DESCRIPTION

After an introductory lecture and discussion questions, students participate in two activities. In the first, teams of two students act out, in pantomime, different components of aggregate supply and demand. Other students try (perhaps competing in teams) to determine what resource or activity is being presented, *and* whether the immediate impact of that resource or activity is to increase

the level of a nation's aggregate supply or aggregate demand. In the second activity, individual students or small teams compete to identify the effects of various changes in the economy on the position of the aggregate supply curve or the aggregate demand curve.

TIME REQUIRED

An initial lecture and class discussion (procedure 1) requires one or two class periods. The group activities take an additional two periods, covering procedures 2-5 on the first day, and procedures 6-10 and the Assessment activity on the second. Additional assignments are suggested that could be used for a few additional days, or for as long as two weeks in classes emphasizing macroeconomic theory and policy issues.

MATERIALS

Copies of Visual 1 for all students.

★ One copy of each of the items in Activity 1, folded on individual slips of paper and mixed in a container for students to draw from. Later, a copy of this activity sheet for each student, or an overhead transparency.

A watch with a second hand, or a stopwatch

■ Copies of Activity 2 for each student, or an overhead transparency.

Optional: One large copy of the spinner/dart board in Visual 2, used with an arrow or darts you provide, or with a die or cards numbered one through four. Later, a paper copy of the spinner/dart board for each student, or an overhead transparency.

PROCEDURE

1. Give an introductory lecture on aggregate supply and aggregate demand, based on the Appendix in this lesson or textbook treatments of these topics. Be sure to cover the components of aggregate supply and aggregate demand, noting how an increase or decrease in those components would shift the relevant curve. Also stress the differences between what is shown by aggregate supply and aggregate demand curves and by supply and demand curves for an individual product or productive resource.

Group Activity One: Which Side Are You On? (Procedures 2 - 5)

2. Copy and cut out on individual slips of paper each of the items listed in Activity 1. Fold each slip in half and mix them together in a jar, hat, envelope, or similar container.

3. Explain that you will have pairs of students draw one of the slips and, after a one minute planning period, use pantomime for up to two minutes to "show" the class the resource or activity that is listed on the card. Time the presentations. If students identify the resource or activity during the pantomime, record the amount of time required in seconds. If the visual clues are not solved after two minutes, students in the "audience" may ask questions for up to one additional minute to help determine what the resource or activity is; but all of these questions must be answered by pairs of presenting students simply nodding or shaking their heads to indicate "Yes" or "No." Continue recording the time required to "solve" the charade, up to a total maximum time of three or four minutes, which you set before the game begins. After each resource or activity has been identified, or revealed by the teacher and presenters if students can not solve the problem with the clues they are given, have students indicate whether the *immediate* impact of the resource or activity should be classified as a component of aggregate supply or aggregate demand.

4. *Optional:* team competitions with the charades activity. Divide the class into two groups and have these groups compete to see which one identifies the most resources and activities acted out by other members of their own team in the least amount of time. Alternate presentations by groups from the two different teams. As always in charades, the low time score wins—but in this game there is one more component in the scoring.

Assign one point if a team correctly indicates whether the *immediate* impact of the resource or activity that was acted out should be classified as a component of aggregate supply or aggregate demand. Assign two points if the identification is incorrect. Then multiply the time score from the charades activity by this factor (i.e., by one or two). Remember, the *low total score wins.*

5. Debrief the "Which Side Are You On" activity.

(Review all of the classifications shown on Activity 1 with the entire class. Note that while the immediate impacts of the resources and activities can be considered part of either aggregate supply or aggregate demand, many of the classifications become far more ambiguous over time. For example, factories are primarily part of aggregate supply, but investment spending to build factories (or a new house) is part of aggregate demand. In the long run, all of the cases involving people as resources will have an impact on both aggregate supply and aggregate demand. At a given moment of time, however, in their roles as workers and entrepreneurs, people are productive resources acting as part of aggregate supply; as consumers their spending for goods and services is the largest single component of aggregate demand. This ambiguity in the long run is a natural part of the systemwide or general equilibrium nature of macroeconomics. Here, it will also make the students' discussion and your debriefing more interesting.

The key point is for students to understand the basic components of aggregate supply and aggregate demand (discussed more fully in the Appendix), and then the factors that shift these two curves, which are the focus of the second group activity.)

Group Activity 2: Shifting Shapes and Curves (Procedures 6 - 9)

6. Divide the class into groups of three to five students, including stronger and weaker students on each team. Announce that the teams will compete to see who can identify the initial effect on aggregate supply or aggregate demand of several different events that you will announce. Even better, if you have more time to devote to this material, have the teams compete on the basis of which team gets the most correct answers when you announce all of the events, with each team recording its answers on paper.

7. *Important: Decide whether you will use optional procedure 9 before you begin this activity!* Explain that the events you are about to describe will initially cause aggregate supply or aggregate demand curves to increase or decrease, or lead to a movement along the aggregate supply and aggregate demand curves without causing them to shift. (When the price level changes we move along the aggregate supply and aggregate demand schedules, just as we move along a microeconomic supply or demand curve for a particular product when its price changes. See Lessons 3-5 for the microeconomic parallel.) As in the previous group activity, over time some of these events may also result in shifts in the other aggregate schedule, too—be sure students understand that you want them to identify the most *immediate* effect on aggregate supply or aggregate demand.

8. Mixing the order of individual items and different categories on Activity 2, call them out to the class one by one. Team members should discuss their answers together before announcing or recording their final team answers. They should not talk with students in other groups. *If you use optional procedure 9, first announce the event from Activity 2, then announce the conditions students will need to know to determine the event's effect on the equilibrium price and output level, as explained in the following procedure.*

9. *Optional:* As an extension of procedures 7 and 8, you may want to award additional points if students can identify the effects of the shifts in aggregate supply and aggregate demand depicted in procedure 8 on the equilibrium price level and level of real national output. Recognize that, for shifts in aggregate demand, the effects on the price and output levels will depend on whether aggregate demand intersects aggregate supply in the horizontal, vertical, or positively sloped range of that curve, as discussed in the Appendix to this lesson. Therefore, before announcing each event, you should establish the relevant shape and segment of the aggregate supply curve, perhaps at random by letting students spin a spinner, throw darts, cast a die, etc., or by choosing the different conditions deliberately. A sample spinner circle or dart board is included here as Visual 2. You can also assign each segment on that board a number between 1 and 4, and then pick cards numbered 1-4 or throw a die to determine which segment is in play for each event. If you want to be sure all of the different shapes and segments are covered about the same number of times, simply choose the conditions yourself, and check each segment or question number as it is used, to keep track of what you have called.

10. After all of the items from Activity 2 have been called out and the student responses collected, distribute copies of Activity 2 and, if you used optional procedure 9, copies of Visual 1. Debrief the "Shifting Shapes and Curves" activity.

(Review each of the factors and its impact on aggregate supply and aggregate demand, as shown on the sheet. In particular, note that price level changes in and of themselves will simply lead to movements along the aggregate supply and aggregate demand curves, not to shifts in either of these schedules.

If you conducted optional procedure 9, explain Visual 1 and the shape of the aggregate supply curve. Note that both the long-run aggregate supply curve and short-run aggregate supply curve at full employment will be vertical; the short-run aggregate supply curve with extensive unemployed resources or prices that are fixed in the short run will be horizontal; and the short-run aggregate supply curve with bottlenecks of some resources or some downward wage and price rigidities will be positively sloped.

An increase in aggregate demand in the vertical segment of the aggregate supply curve will increase the price level but not output and employment. In the horizontal section of the aggregate supply curve an increase in aggregate demand will increase output and employment but not the price level. In the intermediate, positively sloped, section of the aggregate supply curve, an increase in aggregate demand will increase price, output, and employment levels. Decreases in aggregate demand will have the opposite effects.

Increases in aggregate supply will lower the price level and increase employment and output levels. Decreases in aggregate supply will increase the price level and decrease employment and output levels.)

11. Show the graphs and table in Visual 2 on an overhead transparency, or distribute copies to each student, or to groups of four or five students. Ask them to identify periods of high inflation, high unemployment, or both. Use the information in the graphs and the following debriefing suggestions to help students discuss whether those periods seem to be primarily related to shifts in aggregate supply or aggregate demand. Make sure the students suggest a shift or simultaneous shift in these schedules that is consistent with the changes in the price, employment, and national income/output levels indicated in Visual 2. Relate these problems to the uneven, "business cycle" pattern of growth of the economy (see Lesson 18, on business cycles) shown in the third graph and table, and suggest that the ideal role of macroeconomic stabilization policies (i.e., monetary and fiscal policies) is to make the pattern of growth smoother and, if possible, faster. Debrief the exercise.

(Most of the periods of high inflation are associated with periods of war, when enormous increases in government spending and the nation's money supply sharply increased aggregate demand, leading to higher prices and output levels. Inflation during the two oil-price shocks of the 1970s is also notable—these shocks reduced aggregate supply, leading to higher price but lower output levels, with higher unemployment. The OPEC cartel accomplished this directly by reducing oil supplies, and indirectly because higher oil and energy prices also made much of the nation's capital stock of factories and machines inefficient or obsolete, since they had been designed to run on low-price oil, gas, or electricity.

Unemployment rates were highest during the Great Depression, which President Roosevelt himself called a "failure of demand"—i.e., a period of falling prices and output. Most economists agree with Roosevelt's assessment, but suggest different reasons for the decrease in demand. For example, John Kenneth Galbraith blames the financial panic caused by speculation and the eventual crash of the stock market; Milton Friedman blames bad monetary policies adopted by the Federal Reserve System. A few economists have recently identified supply problems in agriculture and other key sectors in the late 1920s and the 1930s; but the strong consensus is that the Great Depression was primarily demand-induced.

Other periods of high unemployment are related to the peacetime readjustments after the two World Wars, and to demographic changes during the late 1970s and 1980s when many women and

"baby boomers" first entered the labor force. To a large extent, those are both supply side issues in labor markets, leading to lower wages and higher unemployment.)

Suggestions for Further Assignments on Aggregate Demand and Aggregate Supply

Aggregate supply and aggregate demand analysis deals with all of the productive resources in an economy; with all of the spending by households, businesses, and the government; with monetary and fiscal policies; and with international trade—all at the same time! It is difficult to capture fully all of those sectors in any detail using the kind of activities featured in this volume, so if class time and interest permit you may want to turn to more extensive sources and supplementary instructional activities. For example:

Running the U.S. Economy is a microcomputer simulation developed by Keith Lumsden and Alex Scott in 1992 and distributed by the National Council on Economic Education. The simulation is based on real historical data. It features several scenarios that ask students to use monetary and fiscal policy to increase national economic welfare by reducing inflation, unemployment, and the federal deficit, while promoting economic growth.

Simulation of Macroeconomic Concepts, developed by Ronald L. VanSickle, Charles D. DeLorme, and Suzanne S. Wygal, includes several different versions of an aggregate supply-aggregate demand board game. It was published by The University of Georgia (Department of Social Science Education, Athens, Georgia, 30602) in 1990, with funding from the National Science Foundation.

The most widely used and available single source of macroeconomic data on the U.S. economy is the *Economic Report of the President*, prepared by the Council of Economic Advisers and published by the Government Printing Office in Washington, D.C., every February.

For individual student worksheets that provide drill and practice exercises in shifting aggregate supply and demand curves, see the National Council on Economic Education's *Advanced Placement Instructional Package*.

ASSESSMENT

Have students identify factors affecting aggregate supply or aggregate demand from the financial section of any large daily newspaper, *The Wall Street Journal*, *Business Week*, or stories carried on national nightly news broadcasts.

(Such stories appear frequently, albeit on a highly irregular and unpredictable basis. For example, the Federal Reserve frequently tightens or loosens the growth of the money supply (see Lesson 20 on monetary policy) with an eye toward affecting aggregate demand, and consumer and investment spending in particular. Budget debates in Congress related to the annual budget bill prepared by the President are frequently reported as contractionary or expansionary. Consumer and business optimism indexes, related to planned consumer and investment spending, are often reported. Demographic trends affecting labor markets are frequently newsworthy, as are droughts, floods, OPEC production cuts or expansions, and new inventions—all factors influencing aggregate supply.)

APPENDIX
BACKGROUND MATERIAL ON AGGREGATE SUPPLY AND AGGREGATE DEMAND

The nicest thing about using aggregate supply and aggregate demand curves to teach macroeconomics is that they are familiar to students who have already learned about supply and demand curves for an individual product in the introductory or microeconomic sections of an economics course. The mechanics of shifting the curves around and finding new equilibrium levels on the vertical and horizontal axes are, in fact, perfectly transferable. Therefore, once students understand what the aggregate supply and aggregate demand curves are they can use them to explain or predict the effect of some macroeconomic event or policy on the overall price level and the level of national output. But it is also important for students to understand that microeconomic and macroeconomic (i.e., aggregate) supply and demand curves depict very different things, and have the similar shapes they are normally shown as having for very different reasons.

The microeconomic demand curve for some good or service is downward sloping because of substitution and income effects. The *substitution effect* simply refers to the fact that, as the price of some product increases, it becomes relatively more expensive compared to other goods and services consumers might use to satisfy their wants. This increase in the relative price of the product leads people to buy less of it—or more of it in the case of a price decrease.

The *income effect* is based on the fact that people face budget constraints. That means that if the price of something they buy increases while the dollar value of their income does not, in real terms they are poorer and will have to buy less of most of the things they buy. In particular, the income effect associated with such a price increase will lead them to buy less of a product if it is a normal good, but more of the product if it is an inferior good. For example, they might buy less steak and more beans

With the macroeconomic or aggregate demand curve that shows the relationship between the average price level for all goods and services and the quantity of all goods and services people are willing and able to buy, there is no direct parallel to the substitution effect that lies behind the microeconomic demand curve. After all, there obviously isn't any substitute for *all* goods and services.

Similarly, when the prices of all goods and services rise by some percentage, that does not imply that peoples' real incomes change. As the price level rises, the higher prices are paid out to households as income—in the form of wages and salaries, interest payments, rents, or profits. Or they are paid as taxes, which the government then uses to pay households for the goods and services it purchases, or to redistribute to other households as transfer payments, in either case increasing some households' incomes. Because every price increase also increases somebody's income, the real problem with unanticipated inflation is that it redistributes income and complicates production decisions, not that it directly lowers the average level of real income across all households. For that reason, the microeconomic idea of an income effect can't explain the typical shape of the aggregate demand curve, either.

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APPENDIX (continued)

Instead, the characteristic, downward-sloping shape of the aggregate demand curve is explained by:

- *The real balance or wealth effect.* As the average price level for all goods and services falls, the cash balances people are holding as currency and in their checking accounts will buy more goods and services. This isn't an increase in people's income but it is an increase in their wealth, which leads them to buy more goods and services when the price level falls. A rise in the overall price level has the opposite effect, decreasing wealth and the purchasing power of people's money holdings, which will reduce the amount of goods and services they buy.

- *The interest-rate effect.* As the overall price level rises (falls), more (fewer) dollars are required for transactions, the demand for money and interest rates will tend to rise (fall), and that reduces (increases) investment spending, one of the most volatile components of aggregate demand. Once again, changes in the price level are inversely related to the amount of goods and services people want to buy—in this case capital goods such as factories and machines in particular.

- *The foreign-purchases effect.* As the price level for goods produced in a country rises, that tends to make those goods more expensive compared to products produced in other countries, and so its net exports (exports minus imports) will fall. Net exports are a component of aggregate demand, so this is a rationale for the decrease in the quantity of all goods and services purchased as the price level increases. A decrease in the price level in a country will have the opposite effect, and increase its net exports.

At a given price level, the level of aggregate demand depends on the level of spending in four different categories: consumption expenditures, investment spending by businesses, government spending (by all levels of government), and net exports (exports minus imports). Factors that increase any of these components will shift the aggregate demand curve to the right; factors that reduce these components will shift it to the left.

The aggregate supply curve is a bit more complicated to explain, and has to be presented in several parts. To begin, the long-run aggregate supply curve is simply a vertical line, indicating the quantity of goods and services that a nation can produce using all of its productive resources as efficiently as possible, given the current production technologies that are available to it. Developing more and better productive resources or technologies will shift the long-run aggregate supply curve to the right, but the curve will remain perfectly vertical.

In the long run, all resources brought to the factor markets where labor, capital, and natural resources are exchanged will be employed, because the fundamental economic problems of scarcity means that people want more goods and services than the economic system can produce. In the short-run, prices for some resources may get out of line and lead to their unemployment or underemployment. But in the long run the owners of those resources have time to recognize their true market clearing prices, and must accept those prices (including wages) to keep the resources employed and thus contributing to their income and overall economic welfare.

The short-run aggregate supply curve is often shown with three distinct segments. The first segment is sometimes interpreted as representing production levels well below the full employment level of national output, so that in this range output can be expanded without putting upward pressure on the price level. That means this segment of the aggregate supply curve will be perfectly flat, or horizontal.

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APPENDIX (continued)

The same horizontal shape will also occur if, in the short-run, producers and owners of productive resources choose to adjust output levels instead of prices when faced with increases or decreases in the level of aggregate demand. Either way, there is no upward pressure on the price level as the output level increases, and the aggregate supply curve will be horizontal.

The second, intermediate range of the short run aggregate supply curve is one where some key resources start to reach full employment levels, leading to production "bottlenecks" and upward pressures on wages and prices. That results in a positive slope for this segment of the aggregate supply curve. The same, upward slope will also be seen if some, but not all, employers and workers exhibit "sticky" wages and prices in the face of falling aggregate demand. Wages and prices might exhibit such "downward rigidity" because of long-term purchasing or employment contracts that call for fixed wage or price levels for a period of several years or longer. As the overall price level falls, the real cost of using products and workers whose prices and wages are locked in by such contracts goes up, so the quantity of these products sold and the number of these workers employed will fall, leading to a decrease in the overall level of output produced.

The same thing can happen when there are significant costs involved in lowering wages for workers and prices for products, even if there are no long-term contracts that prohibit such changes. (Examples of the costs of changing prices include such things as printing new catalogs and menus to notify customers of these changes, or the costs of renegotiating contracts to establish new wage and price levels.) To avoid or at least reduce these costs, some firms will make adjustments in output and employment levels rather than price and wage changes, especially if there is a feeling that the decrease in demand is just a temporary phenomenon.

Finally, even on the short-run aggregate supply curve, once the level of full employment is reached the curve becomes essentially vertical, because the output level of goods and services in the economy cannot be increased, regardless of how much aggregate demand or the overall price level increase.

The exact shape of the short-run aggregate supply curve is a matter of some dispute among economists from different "schools" of macroeconomic thought. They disagree in particular about how flexible wages and prices really are, how costly it is to change wages and prices, and how important bottlenecks are in periods of increasing aggregate demand. In other words, they disagree most about the intermediate segment of the short-run aggregate supply curve, and the effectiveness of stabilization policies adopted under the assumption that an economy is operating in that range of the aggregate supply curve.

Typically shaped short-run aggregate supply and aggregate demand curves are shown in the graph below, including the controversial intermediate segment of the aggregate supply curve.

ACTIVITY 1

Aggregate Supply	Aggregate Demand
A factory producing computers	A company builds a new factory.
A printing press	A U.S. company sells a jet to a foreign company.
A tractor	A U.S. company buys coffee beans from South America.
Trees	A woman buys a hamburger for her little boy.
A corn field	Students purchase tickets for a rock concert.
A coal mine	A woman buys a new car.
A dentist	The government purchases a new submarine.
An inventor	A farmer buys some fertilizer.
A shoe salesperson	The government sends a woman to the moon.
A rock star	Two newlyweds buy a house.

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ACTIVITY 2

Increases Aggregate Demand:

1. People begin buying more food, clothing and cars.
2. The money supply increases.
3. Sales taxes in most states are cut 20%.
4. Other countries begin buying more goods and services from the U.S.

Decreases Aggregate Demand:

1. The Federal Reserve increases the discount rate to increase other interest rates.
2. The federal government reduces military spending by 20%.
3. Private savings increase 8%.
4. This year the fashion industry features suits and dresses made with silk from China and Japan.

Increases Aggregate Supply:

1. A new invention makes solar energy the least expensive way to heat homes and fuel cars.
2. The percentage of adult women employed or looking for jobs increases sharply.
3. A vast new oil field is discovered under the Great Salt Lake.
4. Education and training levels achieved by most new workers increase sharply.

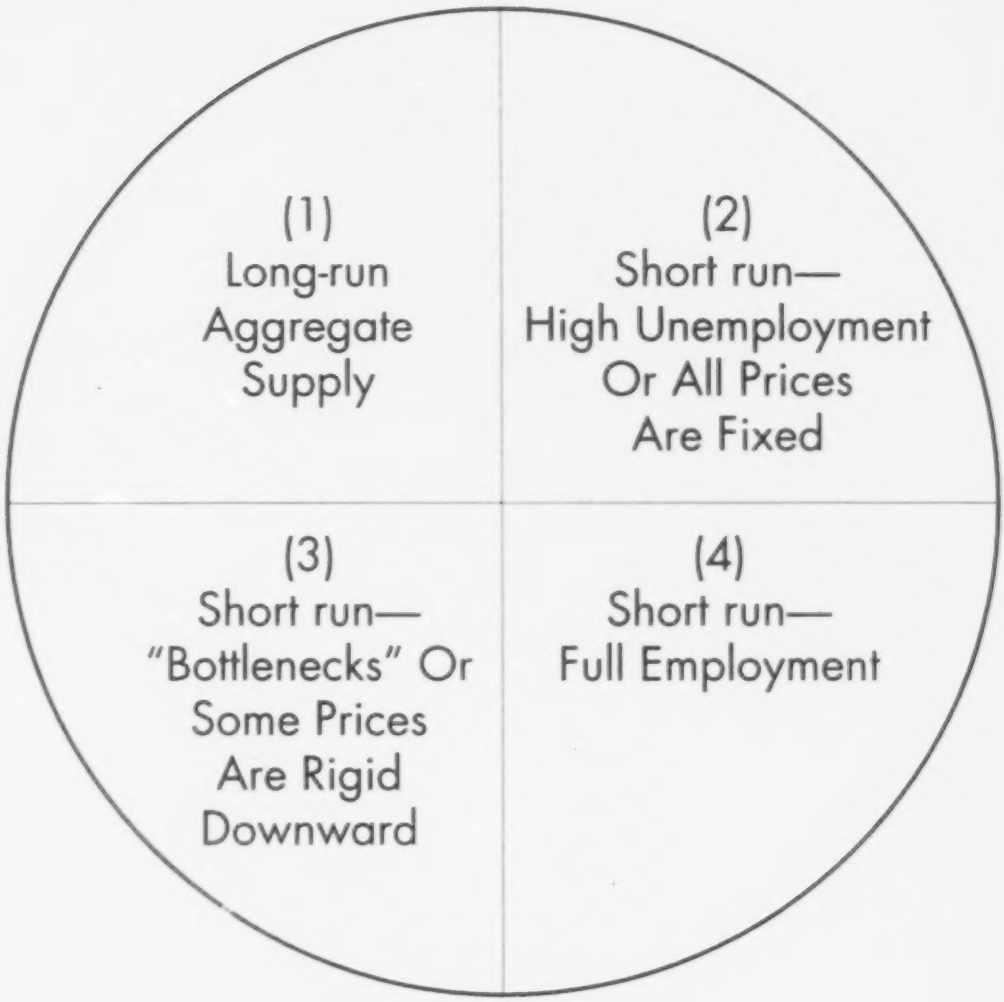
Decreases Aggregate Supply:

1. The OPEC nations reduce their production of crude oil by 30%.
2. More people begin taking early retirements.
3. Floods destroy 10% of the nation's corn and soybean crops.
4. A new 10% tax on wages and salaries is passed by Congress.

No Shift In Aggregate Supply or Aggregate Demand:

1. The Price Level for National Output Increases 10%.
2. The Price Level for National Output Decreases 2%.

VISUAL 1



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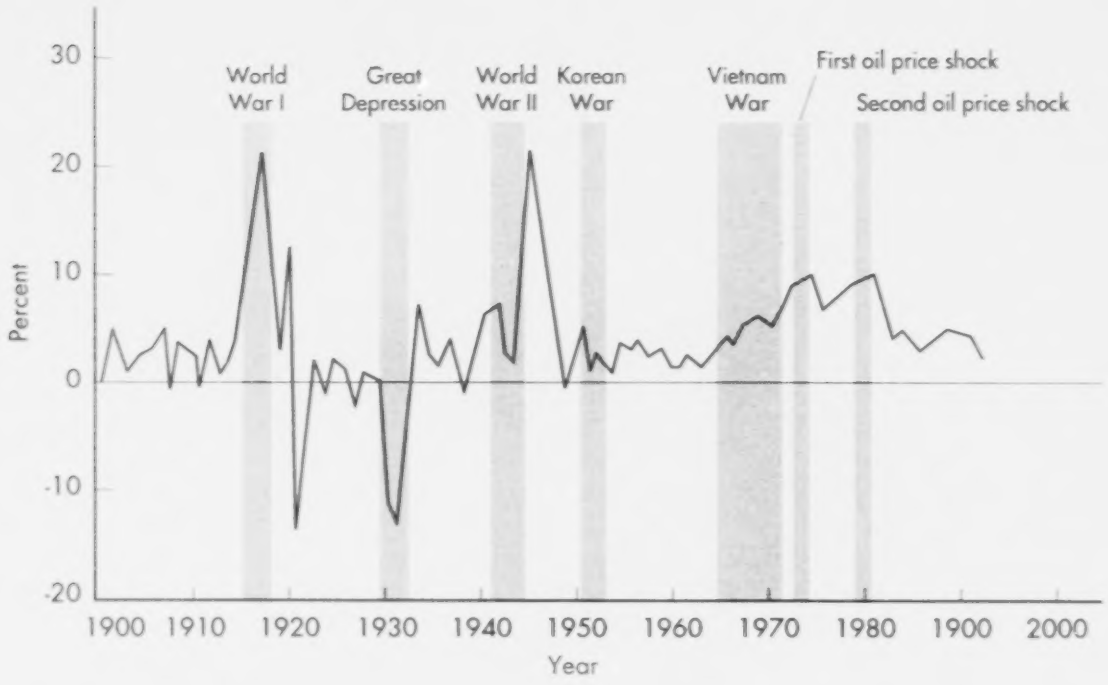
VISUAL 2



The Inflation Rate in the U.S. Economy
The inflation rate measures the percentage change in the average level of prices from the year before. A negative inflation rate indicates that prices are falling.

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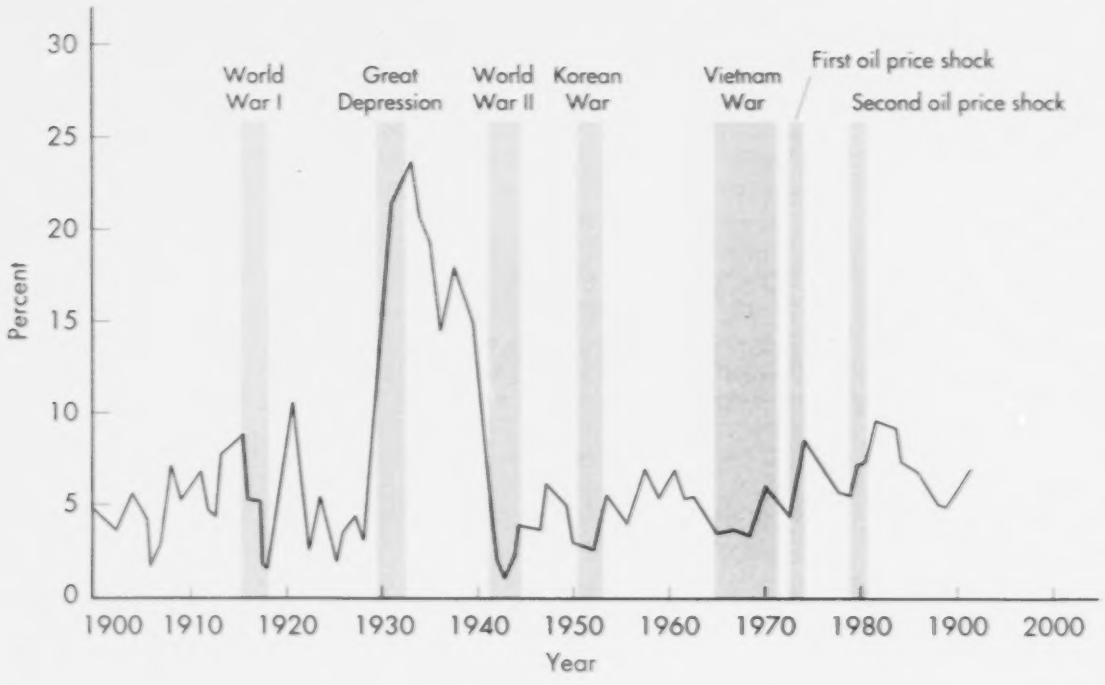
VISUAL 2 (continued)



The Unemployment Rate in the U.S. Economy
The unemployment rate measures the fraction of the labor force that does not have a job.

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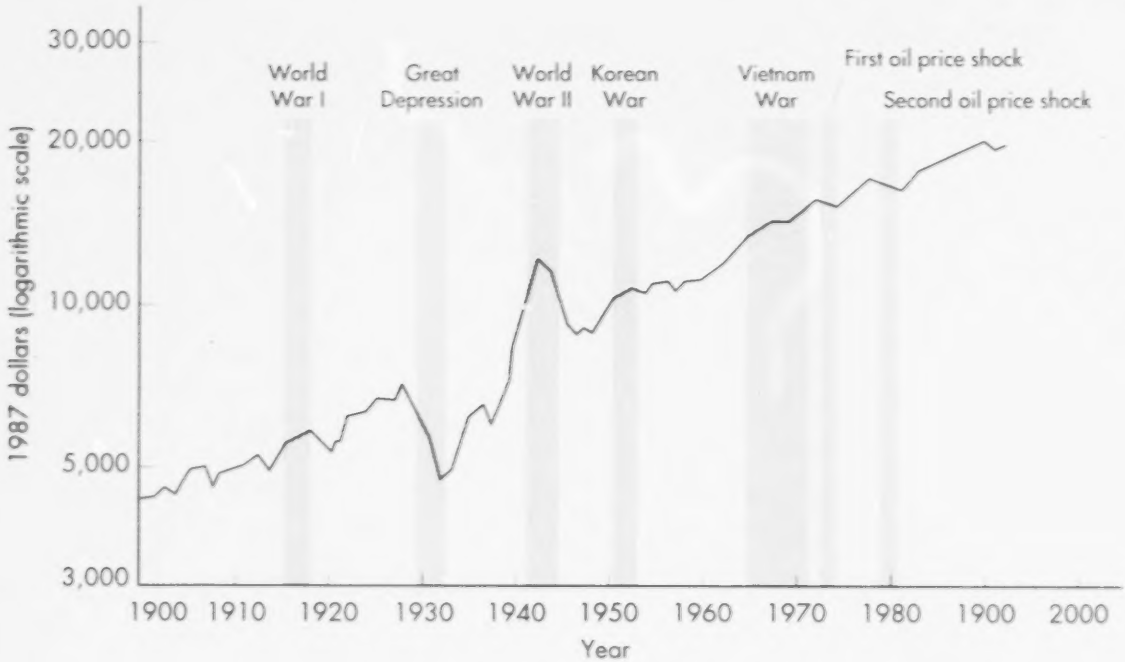
VISUAL 2 (continued)



Real GDP per Person in the U.S. Economy
Real GDP measures the total income of everyone in the economy. Real GDP per person measures the average income received by one person in the economy.

Note: Real GDP per person is plotted here on a logarithmic scale. On such a scale, equal distances on the vertical axis represent equal *percentage* changes. Thus, the distance between $5,000 and $10,000 is the same as the distance between $10,000 and $20,000.

Source: N. Gregory Mankiw, Macroeconomics, 2nd ed., Worth Publishers, 1994, pp. 5-7.

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VISUAL 2 (continued)

Business Cycles in the United States

Trough	Peak	Length of Upturn (months)	Length of downturn (months)	Length of cycle* (months)
December 1854	June 1857	30	18	
December 1858	October 1860	22	8	40
June 1861	April 1865	46	32	54
December 1867	June 1869	18	18	50
December 1870	October 1873	34	65	52
March 1879	March 1882	36	38	101
May 1885	March 1887	22	13	60
May 1891	January 1893	20	17	40
June 1894	December 1895	18	18	33
June 1897	June 1899	24	18	42
December 1900	September 1902	21	23	39
August 1904	May 1907	33	13	56
June 1908	January 1910	19	24	32
January 1912	January 1913	12	23	36
December 1914	August 1918	44	7	67
March 1919	January 1920	10	18	17
July 1921	May 1923	22	14	40
July 1924	October 1926	27	13	41
November 1927	August 1929	21	43	34
March 1933	May 1937	50	13	93
June 1938	February 1945	80	8	45
October 1945	November 1948	37	11	45
October 1949	July 1953	45	10	56
May 1954	August 1957	39	8	49
April 1958	April 1960	24	10	32
February 1961	December 1969	106	11	116
November 1970	November 1973	36	16	47
March 1975	January 1980	58	6	74
July 1980	July 1981	12	16	18
November 1982	July 1990	92	19	108
May 1991				

U.S. Department of Commerce, *Handbook of Cyclical Indicators*, supplement to *Business Conditions Digest*, 1984, p. 178; *Survey of Current Business*, p. C-25.

* Peak to peak

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LESSON TWENTY
MONEY, INTEREST, AND MONETARY POLICY

INTRODUCTION

Interest rates have a significant influence on an economy, yet most people have little understanding of where they come from or the forces that make them rise and fall. This lesson investigates the markets for money and credit, and reveals how the interactions of buyers of money (including borrowers) and sellers of money (including lenders) determine interest rates. The interest rates resulting from these interactions influence national levels of spending, employment, and average prices. The Federal Reserve System tries to control the supply of money and credit, and through that interest rates, to maintain price stability and steady rates of economic growth.

CONCEPTS

Interest rates
Inflation
Monetary policy
Money supply

CONTENT STANDARDS

A nation's basic money supply is usually measured as the total value of coins, currency, and checkable deposits held by the public.

Changes in the size of the money supply can lead to changes in short-run interest rates and in personal and corporate spending, leading to changes in price and employment levels in the economy.

Inflation is a sustained increase in the average price level of the entire economy. Expansionary monetary policy can result in inflation.

To influence the size of the money supply in the United States, the Federal Reserve uses three major tools of monetary policy: reserve requirements, the discount rate, and open market operations.

OBJECTIVES

◆ Describe how changes in the money supply affect interest rates in the short run, and lead to other important changes in the economy, including the level of output, employment, and average prices.

◆ Explain how the Federal Reserve uses the major tools of monetary policy to regulate the economy's money supply.

LESSON DESCRIPTION

Students participate in three simulations. In the first they discover how a change in the money supply influences interest rates in the short run, and the consequences of changes in interest rates for national levels of output, employment, and average prices. In the second simulation, students discover the effects of excessive money creation on product prices. In the third simulation, they learn how the Federal Reserve uses different tools of monetary policy to adjust the amount of money in the economy.

TIME REQUIRED

Two class periods. Day one—procedures 1–12. Day two—procedures 13–19 and Assessment.

MATERIALS

★ One copy of Activity 1, cut up into individual slips that will be passed out to students.
A large, folded, official-looking sheet of paper, with "From the Federal Reserve" printed on the outside in large letters that students can easily read.
A transparency of Visual 1.
One bag each of popcorn seeds and kidney beans, enough to give every student 10 seeds and 10 beans.
Three identical bags of candy to auction off to students.
★ Classroom quantities of Activity 2.
A tent sign with the word "BANK" written on both sides.
★ 10 copies of Activity 3, cut in thirds, and 10 additional copies of the $10,000 bill from this Activity.

PROCEDURE

Procedures 1-5: The Market for Loanable Funds

1. Pass out one information slip from Activity 1 to each student, representing the quantity of money/credit demanded at different interest rates. (There are 24 information slips included on Activity 1. The simulation will work as long as you have at least 10 students. If you have fewer than 24 students, eliminate the information slips with the lowest interest rates until you have one slip for each student. If you have more than 24 students, add extra slips with the lowest interest rates until you have one slip for each student.)

2. Inform students that you will conduct an auction for an undetermined number of $10,000 loans, an amount your informal survey indicates would be sufficient to purchase the dream used car favored by most members of the class, or to buy a part-share in a new sandwich shop franchise. You represent the only banker in the classroom economy, and have a certain amount of funds to lend which will not be announced in advance. Indicate that your loan officer (perhaps the school principal or assistant principal's name would be appropriate to use as the loan officer) has found all of the students to be equally credit worthy (or unworthy, as the case may be). Therefore, the loans will be allocated on the basis of the interest rates people are willing to pay, as indicated on their information slips.

3. Ask how many people would take out a loan if the interest rate were 16%? (Zero—record that rate and number in two columns on the chalkboard.) How many at 15½%? (Still zero—record the values on the chart.) At 15%? (One—record the numbers.) At 14½%? (Two—the student who was willing to pay 15% is even happier to borrow at 14½%, of course, and one new borrower is added.) Record these numbers, and continue calling out rates and recording the results until you have loaned out $50,000 to a total of five borrowers, at an interest rate of 13%.

4. Announce that this is all of the money you have available to lend. As you are saying this, however, have a student or another teacher hand you the large folded note clearly marked "From the Federal Reserve" (or have the messenger state in a loud voice that you have a telephone call from "the Fed.") Read the note or leave the room briefly to take the call, and then announce that, "due to a change in the nation's monetary policy," you have additional funds to lend. Draw a horizontal line across the table on the chalkboard showing the number of loans made to this point (see the table in Visual 1), then auction off another $50,000 in $10,000 blocks. The result will be $100,000 in total loans, made to 10 different students, at a final interest rate of 10½%. Draw a line under this entry, again as shown in Visual 1.

5. Debrief the activity by showing the transparency of Visual 1, and explaining that the information slips held by the students translated into a demand for loanable funds schedule like the one shown in the table and in the supply and demand graph. The supply schedules in the graph are shown as two vertical lines because, in this activity, it was initially assumed that your bank had $50,000 to lend and then, after the notice arrived from the Federal Reserve, $100,000. But note that the supply of loanable funds ultimately comes from people saving the money that banks lend out to other people, so if we had built savings decisions directly into the activity, those supply curves might well have been upward sloping rather than perfectly vertical, because people save more when real interest rates (adjusted for inflation) are high than when they are low. But the precise slope of the two supply curves isn't crucial in this example. The key point to see here is that when the supply of money and loanable funds increased due to the actions of the Federal Reserve (which will be explained in a later activity in this lesson), the effect was to decrease short-run interest rates. When that happened, people borrowed more funds to buy more cars (and other products) and to invest more in sandwich shops (and other businesses). Higher consumption and investment spending will increase aggregate demand (see Lesson 19), and usually increase national output, employment, and average price levels in the short run.

Procedures 6-12 : Inflation as a Monetary Phenomenon

6. Demonstrate the effects of overly expan-

sionary increases in the money supply on product prices and the rate of inflation by giving each student five to 20 popcorn seeds and kidney beans, as instructed in the following procedures. It will not always be necessary to give each student the same number of seeds and beans, but keep track of the total amount of "money" distributed in each round, to use in the debriefing. Announce that you are going to hold three auctions, and that you have three identical bags of candy to sell, one in each round.

7. Give each student five popcorn seeds, and explain that for this activity each seed is worth 10¢. Sell the first bag of candy to the highest bidder, collect the "money" from the winning bidder, and write the price paid (in a dollar equivalent) and the size of the classroom money supply on the chalkboard. Don't be concerned if some students pool their "money" during the bidding. This adds to the excitement of the auction and reflects the intensity of students' desires for the candy.

8. Distribute the remaining popcorn seeds, and conduct the second auction. Give the second bag of candy to the highest bidder, collect the price from the winning bidder, and write the price and size of the money supply on the chalkboard

9. Expand the money supply again to include the popcorn seeds some students still have *and* the kidney beans that you distribute now, which will be valued at $1 each. Auction off the third bag of candy to the highest bidder, and write the price it sold for on the chalkboard, together with the size of the money supply. Note that the intensity of students' desires for the candy, fueled by the rapid increase in the classroom money supply when the number of goods available to be consumed in each period remained constant, drove up the price of candy. Explain that the same thing would have happened if there had been more than one kind of good in each bag auctioned off, so long as the total quantity of goods in each bag remained fixed while the money supply increased so rapidly.

10. Write the following definition of inflation on the chalkboard: a sustained increase in the average price of goods and services in the economy. Explain to students that, during the second and third auctions, they witnessed the fundamental long-run source of inflation in an economy—the supply of money growing faster than the supply of goods and services available for purchase. This is often described as too much money chasing too few goods.

11. Distribute Activity 2 to the students to reinforce their understanding of the insights introduced in the auctions. Ask them to complete the worksheet independently, and then discuss the students' answers in class. (Answers are provided below, following the Assessment activity.) Point out that the long-run growth in the production of goods and services in the U.S. economy averages 2-4% a year, suggesting that long-term growth in the money supply of about the same rate would have a neutral effect on prices, assuming people don't change their spending and saving behavior for other reasons.

12. Note that, taken together, the two activities demonstrated in class today (on Loanable Funds and Inflation) suggest that both good things and bad things can happen when the money supply increases. The trick is to have it grow at the right rate—not too fast, not too slow. Tomorrow, the students will participate in an activity to show how the Federal Reserve system determines, to a large extent, how fast or how slowly the U.S. money supply grows.

Procedures 13-19 : The Federal Reserve and the Major Tools of Monetary Policy

13. Inform students that an independent agency of the federal government, the Federal Reserve System, is responsible for regulating the U.S. money supply. In doing this, the Fed also influences interest rates in the economy, as shown in the first activity. To see how the Fed regulates the money supply, divide the class into thirds. Using materials prepared from Activity 3, give each student in the first group a $10,000 U.S. Treasury bond; in the second group, $10,000 in currency; and, in the third group, $10,000 in a checking account. Explain to the class that the students with the $10,000 bonds have each lent the U.S. Treasury $10,000 and that the piece of paper they have is an IOU from the government, acknowledging the debt. The bond is *not* money, however, because it can't be widely used to purchase goods and services from people or in stores. Students

with $10,000 in a checking account or $10,000 in currency both have money that can be used to buy goods and services, only the forms in which they hold the money differ. Point out that they have no doubt seen people buy things with currency and with checks, but not with bonds. Ask all students with money (checking accounts or currency) to raise their hands. Count the number of hands and multiply by $10,000 to determine the initial amount of money in the classroom. Write this number on the chalkboard under the heading of "Money Supply."

14. Tell four of the students with bonds to assume that they want to buy something, and to do that they must get money by selling their bonds. Tell four of the students with money (currency or checks) to assume that they now want to buy bonds in order to earn interest. Have the eight students exchange their bonds and money. Ask the class if there has been any change in the amount of money in the classroom. (No—different people hold money and bonds, but the total amounts have not changed. Demonstrate that with another show of hands, counting those who hold money [currency, and checks] and those who hold bonds.)

15. Tell four more students with bonds that they have decided they want to get money by selling their bonds. Announce that you will act as the Federal Reserve System in the rest of the activity. The Fed has decided to buy these four bonds. Give each of the four students $10,000 in currency in exchange for the $10,000 bonds. Ask the class:

A. What has happened now to the amount of money in the classroom? (It increased by $40,000. Demonstrate that with another show of hands.)

B. Where did the money come from? (The Federal Reserve.)

C. Where did the Federal Reserve get the money? (The Fed created the money out of thin air, in effect by printing the money, although in practice it simply pays with a check—which has the same effect on the money supply—not by issuing additional currency.)

D. What was the direction of the monetary policy in which the Fed engaged? (Expansionary—making the money supply in the classroom larger.)

16. Reverse procedure 14; that is, have the Fed sell bonds to four students in exchange for money (currency or checks) from the students. Once again, ask all students with money to raise their hands. Count hands and multiply by $10,000 to show that when the Fed sells bonds, it has the opposite effect on the money supply from when the Fed buys bonds. This effect is contractionary. Inform students that the buying and selling of bonds, called **Open Market Operations**, is the most important of the three tools used by the Fed to regulate the money supply, in the sense that it is used on a week-to-week basis to make both large and small adjustments to the nation's money supply.

17. Ask all the students with checking account money to raise their hands. Multiply the number of hands by $10,000, and write this number on the chalkboard under the heading "Bank Deposits." Have a pile of currency equal to this amount with the sign marked "BANK" beside it. Tell the students that the bank has their money on deposit and would like to lend some of it. The amount the bank can lend depends on the reserve requirements set for banks by the Federal Reserve. Explain that if the reserve requirement were 100 percent, none could be lent; if it were 25 percent, 75 percent could be lent. Set the Fed's reserve requirement for banks initially at 50 percent, and lend the equivalent of half the bank's checking account deposits to a student.

Have the student sign an IOU for the amount of the loan. Ask the class the following questions:

A. How much money is in the classroom now? (Count all currency and checking account balances.)

B. By how much has the money supply increased? (By the amount of the loan.)

C. What action caused the increase in the money supply? (The bank's loan.)

D. If the Federal Reserve cut the reserve requirement, what could the bank do? (Make more loans and expand the money supply even more.)

Summarize by explaining that actions by the Federal Reserve requiring banks to hold reserves are called setting the **Reserve Requirement**. A decrease in the reserve requirement is an expansionary monetary policy. An increase in the reserve requirement is a contractionary monetary policy.

18. Announce to the class that the bank made too many loans yesterday and is $500,000 short of meeting its reserve requirement. Explain that the Federal Reserve lends money to banks in these circumstances, so that they can meet their reserve requirements; but it charges banks interest on these loans. The interest rate on these loans to banks from the Federal Reserve is known as the **Discount Rate**. Ask the class: Would the bank borrow this money from the Federal Reserve if it had no better way to meet its reserve requirements? (Yes, although banks usually try to avoid such loans. In particular, the higher the Federal Reserve sets the rate it charges for such loans, the greater the banks' disincentive to borrow, and the greater their incentive to cut their lending to meet their reserve requirements. These actions decrease the money supply.)

19. Review the following points: The interest rate banks pay when they borrow from the Federal Reserve is called the **Discount Rate**. **Open Market Operations**, **Reserve Requirements**, and the **Discount Rate** are the major tools of monetary policy. They are used by the Federal Reserve to regulate the money supply, the availability of credit, and interest rates in the economy.

ASSESSMENT

1. Tell students to assume the role of members of the Federal Reserve Board. They are charged with controlling the nation's money supply to achieve full employment and stable prices in the economy. In groups of twelve students (corresponding to the size of the Fed's Open Market Committee), have the students prepare a proposal recommending monetary policy actions designed to correct problems with spending, employment, and average prices caused by high interest rates. Specifically, different groups should assume one of the following scenarios for the economy or, if time permits, have each of the groups consider all three scenarios:

A. The national economy is sluggish as a result of tight (contractionary) money policies over the past two years.

B. The economy is growing rapidly—in fact, many economists believe it is in danger of experiencing shortages of skilled labor and key industrial inputs, such as steel and petroleum.

C. The economy is experiencing 10% inflation per year.

Have each group identify and list the most likely problems with spending, employment, and average prices under the different scenarios. What monetary policy does each group propose? How does each group expect the monetary policies they propose to solve the problems they identify with spending, employment, and average prices? Have the groups present their recommendations to the full class, compare their reasoning, and try to agree on the most appropriate set of monetary policies for each scenario.

2. Have students read the business section of any large daily newspaper and find articles on interest rates. Have students, individually or in small groups, speculate on the actions the Fed might be taking to produce the effect on interest rates described in the article. Let some students present the results of their investigations to the rest of the class for discussion.

ANSWERS TO ACTIVITY 2

1. Increased

2. Increased

3. Spent it

4. Increased it

5. Decrease in average price

6. When the increase in the money supply greatly exceeds the increase in the number of goods and services to spend it on.

7. When the increase in the money supply is not greater than the increase in the number of goods and services to spend it on (or people choose not to spend their larger money holdings).

ACTIVITY 1
STUDENT INFORMATION SLIPS

You are willing to borrow $10,000 at an interest rate of 15% or lower.	You are willing to borrow $10,000 at an interest rate of 14½% or lower.
You are willing to borrow $10,000 at an interest rate of 14% or lower.	You are willing to borrow $10,000 at an interest rate of 13½% or lower.
You are willing to borrow $10,000 at an interest rate of 13% or lower.	You are willing to borrow $10,000 at an interest rate of 12½% or lower.
You are willing to borrow $10,000 at an interest rate of 12% or lower.	You are willing to borrow $10,000 at an interest rate of 11½% or lower.
You are willing to borrow $10,000 at an interest rate of 11% or lower.	You are willing to borrow $10,000 at an interest rate of 10½% or lower.
You are willing to borrow $10,000 at an interest rate of 10% or lower.	You are willing to borrow $10,000 at an interest rate of 9½% or lower.
You are willing to borrow $10,000 at an interest rate of 9% or lower.	You are willing to borrow $10,000 at an interest rate of 8½% or lower.
You are willing to borrow $10,000 at an interest rate of 8% or lower.	You are willing to borrow $10,000 at an interest rate of 7½% or lower.
You are willing to borrow $10,000 at an interest rate of 7% or lower.	You are willing to borrow $10,000 at an interest rate of 6½% or lower.
You are willing to borrow $10,000 at an interest rate of 6% or lower.	You are willing to borrow $10,000 at an interest rate of 5% or lower.
You are willing to borrow $10,000 at an interest rate of 4% or lower.	You are willing to borrow $10,000 at an interest rate of 3% or lower.
You are willing to borrow $10,000 at an interest rate of 2% or lower.	You are willing to borrow $10,000 at an interest rate of 1% or lower.

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ACTIVITY 2
MONEY MATTERS SIMULATION QUESTIONS

Name _____

1. What happened to the price of the item being auctioned off between the first and third auctions?

2. What happened to the amount of "money" in the classroom between the first and third auctions?

3. What did people do with the additional money they had in later rounds?

4. What effect did this have on the price of the item during the auction?

5. What do you think would have happened to the price if the number of items offered for sale in the third auction increased from one to, say, 1,000?

6. Under what conditions is increasing the supply of money inflationary?

7. Under what conditions is increasing the supply of money not inflationary?

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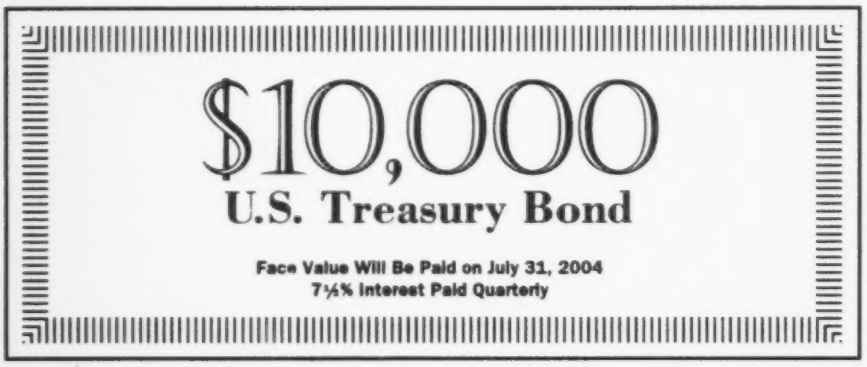
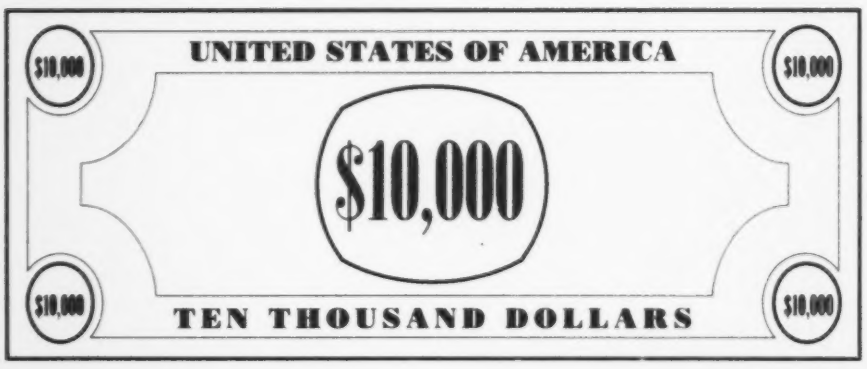
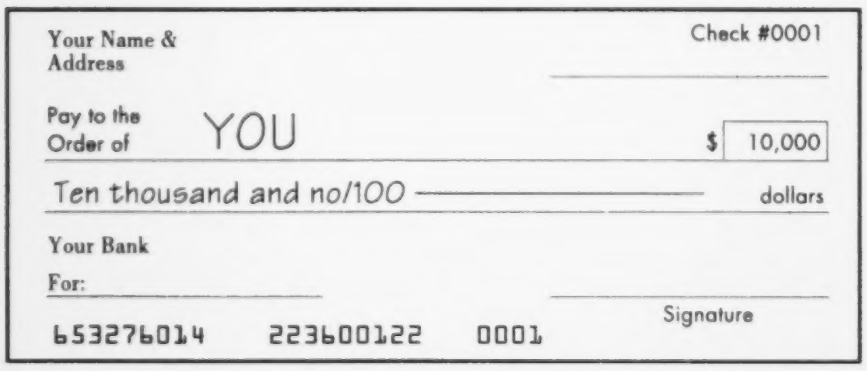
ACTIVITY 3
MONEY CREATION







VISUAL 1
THE CLASSROOM DEMAND FOR LOANABLE FUNDS

Price of Loanable Funds (Interest Rate)	Number of $10,000 Loans Demanded	Total Quantity of Loanable Funds Demanded
16%	0	0
15½	0	0
15	1	$ 10,000
14½	2	20,000
14	3	30,000
13½	4	40,000
13	5	50,000
12½	6	60,000
12	7	70,000
11½	8	80,000
11	9	90,000
10½	10	100,000
10	11	110,000
9½	12	120,000
9	13	130,000
8½	14	140,000
8	15	150,000
7½	16	160,000
7	17	170,000
6½	18	180,000
6	19	190,000
5	20	200,000
4	21	210,000
3	22	220,000
2	23	230,000
1	24	240,000

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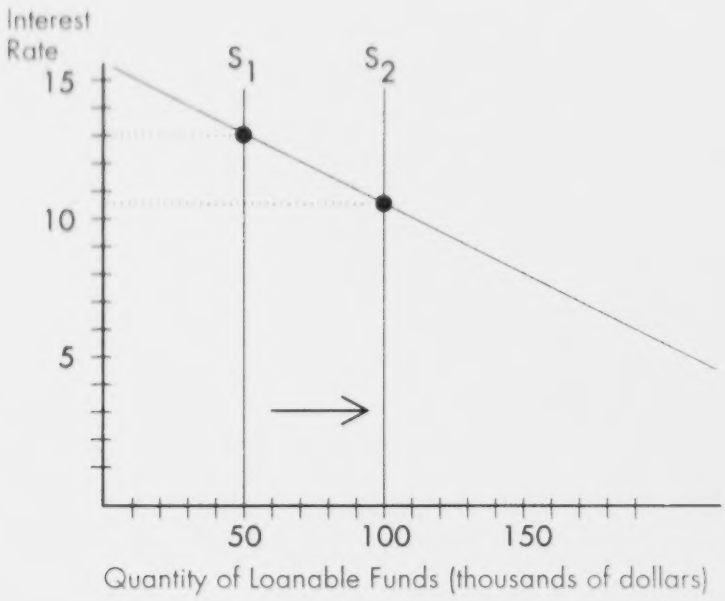
VISUAL 1 (continued)
THE CLASSROOM SUPPLY AND DEMAND FOR LOANABLE FUNDS GRAPH



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